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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

CALIFORNIA, USA ONLY
The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.
"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

ASRock Website: http://www.asrock.com

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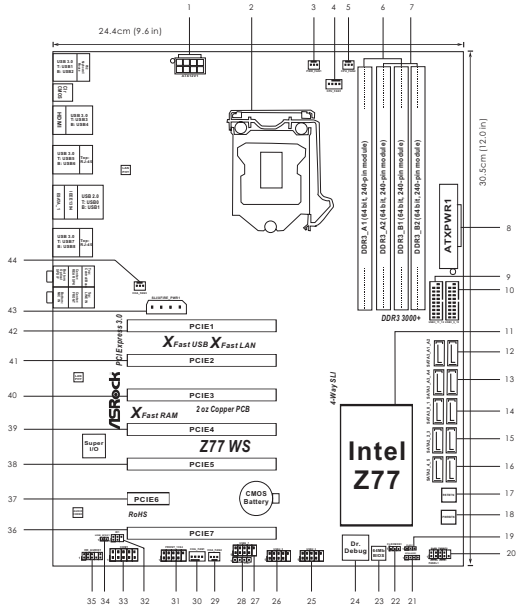
English

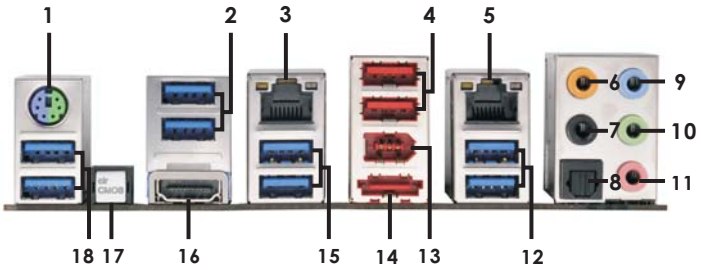
Motherboard Layout



1	ATX 12V Power Connector (ATX12V1)	24	Dr. Debug
2	1155-Pin CPU Socket	25	USB 2.0 Header (USB2_3, Black)
3	Power Fan Connector (PWR_FAN1)	26	USB 2.0 Header (USB4_5, Black)
4	CPU Fan Connector (CPU_FAN1)	27	USB 2.0 Header (USB6_7, Black)
5	CPU Fan Connector (CPU_FAN2)	28	Consumer Infrared Module Header (CIR1, Gray)
6	2 x 240-pin DDR3 DIMM Slots (DDR3_A1, DDR3_B1, Black)	29	Chassis Fan Connector (CHA_FAN2)
7	2 x 240-pin DDR3 DIMM Slots (DDR3_A2, DDR3_B2, Black)	30	Chassis Fan Connector (CHA_FAN1)
8	ATX Power Connector (ATXPWR1)	31	Front Panel IEEE 1394 Header (FRONT_1394, Black)
9	USB 3.0 Header (USB3_11_12, Black)	32	Infrared Module Header (IR1)
10	USB 3.0 Header (USB3_9_10, Black)	33	COM Port Header (COM1)
11	Intel Z77 Chipset	34	HDMI_SPDIF Header (HDMI_SPDIF1, Black)
12	SATA3 Connectors (SATA3_A1_A2, Gray)	35	Front Panel Audio Header (HD_AUDIO1, Black)
13	SATA3 Connectors (SATA3_A3_A4, Gray)	36	PCI Express 3.0 x16 Slot (PCIE7, Black)
14	SATA3 Connectors (SATA3_0_1, Gray)	37	PCI Express 2.0 x1 Slot (PCIE6, Black)
15	SATA2 Connectors (SATA2_2_3, Black)	38	PCI Express 3.0 x16 Slot (PCIE5, Black)
16	SATA2 Connectors (SATA2_4_5, Black)	39	PCI Express 2.0 x16 Slot (PCIE4, Black)
17	Reset Switch (RSTBTN)	40	PCI Express 3.0 x16 Slot (PCIE3, Black)
18	Power Switch (PWRBTN)	41	PCI Express 3.0 x16 Slot (PCIE2, Black)
19	Power LED Header (PLED1)	42	PCI Express 3.0 x16 Slot (PCIE1, Black)
20	System Panel Header (PANEL1, Black)	43	SLI / XFIRE Power Connector
21	Chassis Speaker Header (SPEAKER1, Black)	44	Chassis Fan Connector (CHA_FAN3)
22	Clear CMOS Jumper (CLRCMOS1)		
23	SPI Flash Memory (64Mb)		

English

I/O Panel



1	PS/2 Keyboard/Mouse Port (Purple/Green)	** 10	Front Speaker (Lime)
2	USB 3.0 Ports (USB3_34)	11	Microphone (Pink)
* 3	LAN RJ-45 Port	12	USB 3.0 Ports (USB3_78)
4	USB 2.0 Ports (USB01)	13	IEEE 1394 Port
* 5	LAN RJ-45 Port	*** 14	eSATA3 Port (ESATA_1)
6	Central / Bass (Orange)	15	USB 3.0 Ports (USB3_56)
7	Rear Speaker (Black)	16	HDMI Port (HDMI1)
8	Optical SPDIF Out Port	17	Clear CMOS Switch (CLRCBTN)
9	Line In (Light Blue)	18	USB 3.0 Ports (USB3_12)

* There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

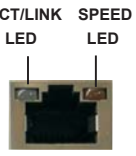
LAN Port LED Indications

Activity/Link LED

Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED

Status	Description
Off	10Mbps connection
Orange	100Mbps connection
Green	1Gbps connection



** If you use 2-channel speaker, please connect the speaker's plug into "Front Speaker Jack". See the table below for connection details in accordance with the type of speaker you use.

TABLE for Audio Output Connection

Audio Output Channels	Front Speaker (No. 10)	Rear Speaker (No. 7)	Central / Bass (No. 6)	Line In or Side Speaker (No. 9)
2	V	--	--	--
4	V	V	--	--
6	V	V	V	--
8	V	V	V	V

English

To enable Multi-Streaming function, you need to connect a front panel audio cable to the front panel audio header. After restarting your computer, you will find “Mixer” tool on your system. Please select “Mixer ToolBox” , click “Enable playback multi-streaming”, and click “ok”. Choose “2CH”, “4CH”, “6CH”, or “8CH” and then you are allowed to select “Realtek HDA Primary output” to use Rear Speaker, Central/Bass, and Front Speaker, or select “Realtek HDA Audio 2nd output” to use front panel audio.

*** eSATA3 connector supports SATA Gen3 in cable 1M.

English

1. Introduction

Thank you for purchasing ASRock ***Z77 WS*** motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

This Quick Installation Guide contains introduction of the motherboard and step-by-step installation guide. More detailed information of the motherboard can be found in the user manual presented in the Support CD.

Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest VGA cards and CPU support lists on ASRock website as well. ASRock website http://www.asrock.com

If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. www.asrock.com/support/index.asp

1.1 Package Contents

ASRock ***Z77 WS*** Motherboard
(ATX Form Factor: 12.0-in x 9.6-in, 30.5 cm x 24.4 cm)
ASRock ***Z77 WS*** Quick Installation Guide
ASRock ***Z77 WS*** Support CD
6 x Serial ATA (SATA) Data Cables (Optional)
1 x Serial ATA (SATA) HDD Power Cable (Optional)
1 x I/O Panel Shield
2 x ASRock SLI_Bridge Cards
1 x ASRock SLI_Bridge_3S Card
1 x ASRock 3-Way SLI Bridge Card

ASRock Reminds You...

To get better performance in Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit, it is recommended to set the BIOS option in Storage Configuration to AHCI mode. For the BIOS setup, please refer to the "User Manual" in our support CD for details.

English

1.2 Specifications

Platform	- ATX Form Factor: 12.0-in x 9.6-in, 30.5 cm x 24.4 cm - Premium Gold Capacitor design (100% Japan-made high-quality Conductive Polymer Capacitors)
CPU	- Supports 3rd and 2nd Generation Intel® Core™ i7 / i5 / i3 in LGA1155 Package - Digi Power Design - 8 + 4 Power Phase Design - Supports Intel® Turbo Boost 2.0 Technology - Supports Intel® K-Series unlocked CPU
Chipset	- Intel® Z77 - Supports Intel® Rapid Start Technology and Smart Connect Technology
Memory	- Dual Channel DDR3 Memory Technology - 4 x DDR3 DIMM slots - Supports DDR3 3000+(OC)/2400(OC)/2133(OC)/1866(OC)/1600/1333/1066 non-ECC, un-buffered memory - Max. capacity of system memory: 32GB (see **CAUTION 1**) - Supports Intel® Extreme Memory Profile (XMP)1.3/1.2
Expansion Slot	- 5 x PCI Express 3.0 x16 slots (PCIE2: x16 mode OR PCIE1/PCIE3/PCIE5/PCIE7: x16/0/16/0 or x8/8/8/8 mode) * PCIE 3.0 is only supported with Intel® Ivy Bridge CPU. With Intel® Sandy Bridge CPU, it only supports PCIE 2.0. - 1 x PCI Express 2.0 x16 slot (PCIE4: x4 mode) - 1 x PCI Express 2.0 x 1 slot - Supports AMD Quad CrossFireX™, 4-Way CrossFireX™, 3-Way CrossFireX™ and CrossFireX™ - Supports NVIDIA® Quad SLI™, 4-Way SLI™, 3-Way SLI™ and SLI™
Graphics	* Intel® HD Graphics Built-in Visuals and the VGA outputs can be supported only with processors which are GPU integrated. - Supports Intel® HD Graphics Built-in Visuals: Intel® Quick Sync Video 2.0, Intel® InTru™ 3D, Intel® Clear Video HD Technology, Intel® Insider™, Intel® HD Graphics 2500/4000 - Pixel Shader 5.0, DirectX 11 with Intel® Ivy Bridge CPU. Pixel Shader 4.1, DirectX 10.1 with Intel® Sandy Bridge CPU. - Max. shared memory 1760MB

English

	- Supports HDMI 1.4a Technology with max. resolution up to 1920x1200 @ 60Hz - Supports Auto Lip Sync, Deep Color (12bpc), xvYCC and HBR (High Bit Rate Audio) with HDMI (Compliant HDMI monitor is required) (see **CAUTION 2**) - Supports HDCP function with HDMI port - Supports Full HD 1080p Blu-ray (BD) / HD-DVD playback with HDMI port
Audio	- 7.1 CH HD Audio with Content Protection (Realtek ALC898 Audio Codec) - Premium Blu-ray audio support
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - Supports Wake-On-LAN - Supports Energy Efficient Ethernet 802.3az - Supports Dual LAN with Teaming function - Supports PXE
Storage	- 2 x SATA3 6.0 Gb/s connectors by Intel® Z77, support RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage and Intel Smart Response Technology), NCQ, AHCI and Hot Plug functions - 4 x SATA3 6.0 Gb/s connectors by ASMedia ASM1061, support NCQ, AHCI and “Hot Plug” functions (SATA3_A4 connector is shared with eSATA3 port) - 4 x SATA2 3.0 Gb/s connectors by Intel® Z77, support RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage and Intel Smart Response Technology), NCQ, AHCI and Hot Plug functions
Rear Panel I/O	I/O Panel - 1 x PS/2 Keyboard/Mouse Port - 1 x HDMI Port - 1 x Optical SPDIF Out Port - 2 x Ready-to-Use USB 2.0 Ports - 1 x eSATA3 Connector - 8 x Ready-to-Use USB 3.0 Ports - 2 x RJ-45 LAN Ports with LED (ACT/LINK LED and SPEED LED) - 1 x IEEE 1394 Port - 1 x Clear CMOS Switch with LED - HD Audio Jack: Rear Speaker/Central/Bass/Line in/Front Speaker/Microphone

English

USB3.0	- 4 x Rear USB 3.0 ports by Intel® Z77, support USB 1.0/2.0/3.0 up to 5Gb/s - 4 x Rear USB 3.0 ports by Etron EJ188, support USB 1.0/2.0/3.0 up to 5Gb/s - 2 x Front USB 3.0 headers by Etron EJ188 (support 4 USB 3.0 ports), support USB 1.0/2.0/3.0 up to 5Gb/s
Connector	- 1 x IR header - 1 x CIR header - 1 x COM port header - 1 x HDMI_SPDIF header - 1 x IEEE 1394 header - 1 x Power LED header - 2 x CPU Fan connectors (1 x 4-pin, 1 x 3-pin) - 3 x Chassis Fan connectors (1 x 4-pin, 2 x 3-pin) - 1 x Power Fan connector (3-pin) - 24 pin ATX power connector - 8 pin 12V power connector - SLI/XFire power connector - Front panel audio connector - 3 x USB 2.0 headers (support 6 USB 2.0 ports) - 2 x USB 3.0 headers (support 4 USB 3.0 ports) - 1 x Dr. Debug with LED - 1 x Power Switch with LED - 1 x Reset Switch with LED - 1 x Clear CMOS Switch with LED
BIOS Feature	- 64Mb AMI UEFI Legal BIOS with GUI support - Supports “Plug and Play” - ACPI 1.1 Compliance Wake Up Events - Supports jumperfree - SMBIOS 2.3.1 Support - CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA Voltage Multi-adjustment
Support CD	- Drivers, Utilities, AntiVirus Software (Trial Version), CyberLink MediaEspresso 6.5 Trial, ASRock MAGIX Multimedia Suite - OEM
Hardware Monitor	- CPU Temperature Sensing - Chassis Temperature Sensing - CPU/Chassis/Power Fan Tachometer - CPU/Chassis Quiet Fan (Allows Chassis Fan Speed Auto-Adjust by CPU Temperature) - CPU/Chassis Fan Multi-Speed Control

English

	- Voltage Monitoring: +12V, +5V, +3.3V, CPU Vcore
OS	- Microsoft® Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit compliant (see **CAUTION 3**)
Certifications	- FCC, CE, WHQL - ErP/EuP Ready (ErP/EuP ready power supply is required)

* For detailed product information, please visit our website: http://www.asrock.com

WARNING

Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

CAUTION!

1. Due to the operating system limitation, the actual memory size may be less than 4GB for the reservation for system usage under Windows® 7 / Vista™ / XP. For Windows® OS with 64-bit CPU, there is no such limitation. You can use ASRock XFast RAM to utilize the memory that Windows® cannot use.
2. xvYCC and Deep Color are only supported under Windows® 7 64-bit / 7. Deep Color mode will be enabled only if the display supports 12bpc in EDID. HBR is supported under Windows® 7 64-bit / 7 / Vista™ 64-bit / Vista™.
3. ASRock XFast RAM is not supported by Microsoft® Windows® XP / XP 64-bit. Intel® Smart Connect Technology and Intel® USB 3.0 ports are not supported by Microsoft® Windows® Vista™ / Vista™ 64-bit / XP / XP 64-bit.

English

1.3 Unique Features

ASRock Extreme Tuning Utility (AXTU)

ASRock Extreme Tuning Utility (AXTU) is an all-in-one tool to ne-tune different system functions in a user-friendly interface, which includes Hardware Monitor, Fan Control, Overclocking, OC DNA, IES and XFast RAM. In Hardware Monitor, it shows the major readings of your system. In Fan Control, it shows the fan speed and temperature for you to adjust. In Overclocking, you are allowed to overclock CPU frequency for optimal system performance. In OC DNA, you can save your OC settings as a profile and share it with your friends. Your friends then can load the OC profile to their own system to get the same OC settings. In IES (Intelligent Energy Saver), the voltage regulator can reduce the number of output phases to improve efficiency when the CPU cores are idle without sacrificing computing performance. In XFast RAM, it fully utilizes the memory space that cannot be used under Windows® OS 32-bit CPU.

ASRock Instant Boot

ASRock Instant Boot allows you to turn on your PC in just a few seconds, provides a much more efficient way to save energy, time, money, and improves system running speed for your system. It leverages the S3 and S4 ACPI features which normally enable the Sleep/Standby and Hibernation modes in Windows® to shorten boot up time. By calling S3 and S4 at specific timing during the shutdown and startup process, Instant Boot allows you to enter your Windows® desktop in a few seconds.

ASRock Instant Flash

ASRock Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update system BIOS without entering operating systems first like MS-DOS or Windows®. With this utility, you can press the <F6> key during the POST or the <F2> key to enter into the BIOS setup menu to access ASRock Instant Flash. Just launch this tool and save the new BIOS file to your USB flash drive, floppy disk or hard drive, then you can update your BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system.

ASRock APP Charger

If you desire a faster, less restricted way of charging your Apple devices, such as iPhone/iPad/iPod Touch, ASRock has prepared a wonderful solution for you - ASRock APP Charger. Simply install the APP Charger driver, it makes your iPhone charge much quickly from your computer and up to 40% faster than before. ASRock APP Charger allows you to quickly charge many Apple devices simultaneously and even supports continuous charging when your PC enters into Standby mode (S1), Suspend to RAM (S3), hibernation mode (S4) or power off (S5). With APP Charger driver installed, you can easily enjoy the marvelous charging experience.

ASRock SmartView

ASRock SmartView, a new function for internet browsers, is the smart start page for IE that combines your most visited web sites, your history, your Facebook friends and your real-time newsfeed into an enhanced view for a more personal Internet experience. ASRock motherboards are exclusively equipped with the ASRock SmartView utility that helps you keep in touch with friends on-the-go. To use ASRock SmartView feature, please make sure your OS version is Windows® 7 / 7 64 bit / Vista™ / Vista™ 64 bit, and your browser version is IE8.

ASRock XFast USB

ASRock XFast USB can boost USB storage device performance. The performance may depend on the properties of the device.

ASRock XFast LAN

ASRock XFast LAN provides a faster internet access, which includes the benefits listed below. LAN Application Prioritization: You can configure your application's priority ideally and/or add new programs. Lower Latency in Game: After setting online game's priority higher, it can lower the latency in games. Traffic Shaping: You can watch Youtube HD videos and download simultaneously. Real-Time Analysis of Your Data: With the status window, you can easily recognize which data streams you are transferring currently.

ASRock XFast RAM

ASRock XFast RAM is a new function that is included into ASRock Extreme Tuning Utility (AXTU). It fully utilizes the memory space that cannot be used under Windows® OS 32-bit CPU. ASRock XFast RAM shortens the loading time of previously visited websites, making web surfing faster than ever. And it also boosts the speed of Adobe Photoshop 5 times faster. Another advantage of ASRock XFast RAM is that it reduces the frequency of accessing your SSDs or HDDs in order to extend their lifespan.

ASRock Crashless BIOS

ASRock Crashless BIOS allows users to update their BIOS without fear of failing. If power loss occurs during the BIOS update process, ASRock Crashless BIOS will automatically finish the BIOS update procedure after regaining power. Please note that BIOS files need to be placed in the root directory of your USB disk. Only USB2.0 ports support this feature.

ASRock Interactive UEFI

ASRock Interactive UEFI is a blend of system configuration tools, cool sound effects and stunning visuals. The unprecedented UEFI provides a more attractive interface and brings a lot more amusing.

ASRock Good Night LED

ASRock Good Night LED technology can offer you a better environment by extinguishing the unessential LED. By enabling Good Night LED in BIOS, the Power / HDD / LAN LED will be switched off when system is on. Not only this, Good night LED will automatically switch off Power and Keyboard LED when the system enters into Standby / Hibernation mode as well.

English

2. Installation

This is an ATX form factor (12.0" x 9.6", 30.5 x 24.4 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

2.1 Screw Holes

Place screws into the holes indicated by circles to secure the motherboard to the chassis.

Do not over-tighten the screws! Doing so may damage the motherboard.

2.2 Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

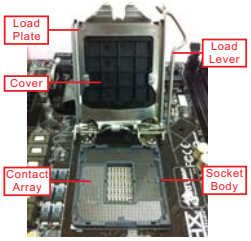
1. Unplug the power cord from the wall socket before touching any components.
2. To avoid damaging the motherboard's components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded anti-static pad or in the bag that comes with the component.
5. When placing screws into the screw holes to secure the mother-board to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

English

2.3 CPU Installation

In order to provide the LGA 1155 CPU sockets more protection and make the installation process easier, ASRock has added a new protection cover on top of the load plate to replace the former PnP caps that were under the load plate. For the installation of Intel® 1155-Pin CPUs with the new protection cover, please follow the steps below.



1155-Pin Socket Overview

Before you insert the 1155-Pin CPU into the socket, please check if the CPU surface is unclean or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.

Step 1. Open the socket:

Step 1-1. Disengage the lever by pressing it down and sliding it out of the hook. You do not have to remove the protection cover.

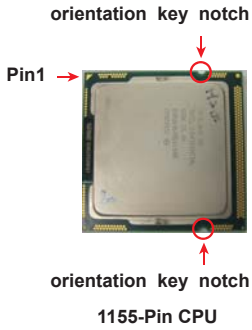
Step 1-2. Keep the lever positioned at about 135 degrees in order to flip up the load plate.

Step 2. Insert the 1155-Pin CPU:

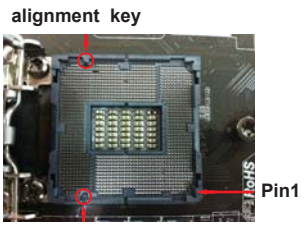
Step 2-1. Hold the CPU by the edge which is marked with a black line.

Step 2-2. Orient the CPU with the IHS (Integrated Heat Sink) up. Locate Pin1 and the two orientation key notches.

English



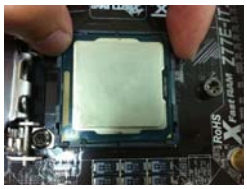
1155-Pin CPU



1155-Pin Socket

For proper installation, please ensure to match the two orientation key notches of the CPU with the two alignment keys of the socket.

Step 2-3. Carefully place the CPU into the socket.



Step 2-4. Verify that the CPU is within the socket and properly mated to the orient keys.

Step 3. Close the socket:

Step 3-1. Flip the load plate onto the IHS.

Step 3-2. Press down the load lever, and secure it with the load plate tab under the retention tab. The protection cover will automatically come off by itself.

Please save and replace the cover if the processor is removed. The cover must be placed if you wish to return the motherboard for after service.

English

2.4 Installation of CPU Fan and Heatsink

This motherboard is equipped with 1155-Pin socket that supports Intel 1155-Pin CPUs. Please adopt the type of heatsink and cooling fan compliant with Intel 1155-Pin CPU to dissipate heat. Before you install the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation. Ensure that the CPU and the heatsink are securely fastened and in good contact with each other. Then connect the CPU fan to the CPU_FAN connector (CPU_FAN1, see page 2, No. 4 or CPU_FAN2, see page 2. No.5).

For proper installation, please kindly refer to the instruction manuals of your CPU fan and heatsink.

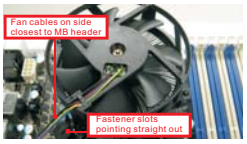
Below is an example to illustrate the installation of the heatsink for 1155-Pin CPUs.

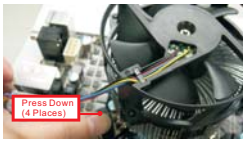
Step 1. Apply thermal interface material onto the center of the IHS on the socket's surface.

Step 2. Place the heatsink onto the socket. Ensure that the fan cables are oriented on side closest to the CPU fan connector on the motherboard (CPU_FAN1, see page 2, No. 4 or CPU_FAN2, see page 2. No.5).

Step 3. Align fasteners with the motherboard through-holes.

Step 4. Rotate the fastener clockwise, then press down on fastener caps with thumb to install and lock. Repeat with remaining fasteners.





If you press down the fasteners without rotating them clockwise, the heatsink cannot be secured on the motherboard.

Step 5. Connect fan header with the CPU fan connector on the motherboard.

Step 6. Secure redundant cable with tie-wrap to ensure the cable does not interfere with fan operation or contact other components.

English

2.5 Installation of Memory Modules (DIMM)

This motherboard provides four 240-pin DDR3 (Double Data Rate 3) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install **identical** (the same brand, speed, size and chip-type) DDR3 DIMM pair in the slots: You have to install **identical** DDR3 DIMMs in **Dual Channel A** (DDR3_A1 and DDR3_B1; Black slots; see p.2 No. 6) or **identical** DDR3 DIMMs in **Dual Channel B** (DDR3_A2 and DDR3_B2; Black slots; see p.2 No. 7), so that Dual Channel Memory Technology can be activated. This motherboard also allows you to install four DDR3 DIMMs for dual channel configuration, please install **identical** DDR3 DIMMs in all four slots. You may refer to the Dual Channel Memory Configuration Table below.

Dual Channel Memory Configuration

	DDR3_A1 (Black Slot)	DDR3_A2 (Black Slot)	DDR3_B1 (Black Slot)	DDR3_B2 (Black Slot)
(1)	Populated	-	Populated	-
(2)	-	Populated	-	Populated
(3)*	Populated	Populated	Populated	Populated

* For configuration (3), please install **identical** DDR3 DIMMs in all four slots.

1. If you want to install two memory modules, for optimal compatibility and reliability, it is recommended to install them in the slots: DDR3_A1 and DDR3_B1, or DDR3_A2 and DDR3_B2.
2. If only one memory module or three memory modules are installed in the DDR3 DIMM slots on this motherboard, it is unable to activate Dual Channel Memory Technology.
3. If a pair of memory modules is NOT installed in the same Dual Channel, for example, installing a pair of memory modules in DDR3_A1 and DDR3_A2, it is unable to activate Dual Channel Memory Technology.
4. It is not allowed to install a DDR or DDR2 memory module into DDR3 slot; otherwise, this motherboard and DIMM may be damaged.
5. Some DDR3 1GB double-sided DIMMs with 16 chips may not work on this motherboard. It is not recommended to install them on this motherboard.
6. For optimal compatibility and stability while overclocking memory frequency, it is recommended to install one memory module on DDR3_B2 slot or two memory modules on DDR3_A2 and DDR3_B2 slots.

English

Installing a DIMM

Please make sure to disconnect power supply before adding or removing DIMMs or the system components.

Step 1. Unlock a DIMM slot by pressing the retaining clips outward.

Step 2. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.

The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

Step 3. Firmly insert the DIMM into the slot until the retaining clips at both ends fully snap back in place and the DIMM is properly seated.

English

2.6 Expansion Slots (PCI Express Slots)

There are 7 PCI Express slots on this motherboard.

PCIE slots:

PCIE1 / PCIE5 (PCIE 3.0 x16 slot) is used for PCI Express x16 lane width graphics cards, or to install PCI Express graphics cards to support CrossFireX™ or SLI™ function.

PCIE3 / PCIE7 (PCIE 3.0 x16 slot) is used for PCI Express x8 lane width graphics cards, or to install PCI Express graphics cards to support CrossFireX™ or SLI™ function.

PCIE2 (PCIE 3.0 x16 slot) is used for PCI Express x16 lane width graphics cards.

PCIE4 (PCIE 2.0 x16 slot) is used for PCI Express x4 lane width graphics cards or ASRock Game Blaster.

PCIE6 (PCIE 2.0 x1 slot) is used for a PCI Express x1 lane width card, such as a Gigabit LAN card, SATA2 card, etc.

PCIE Slot Configurations

	PCIE1	PCIE2	PCIE3	PCIE5	PCIE7
Single Graphics Card	N/A	x16	N/A	N/A	N/A
Two Graphics Cards in CrossFireX™ or SLI™ Mode	x16	N/A	N/A	x16	N/A
Three Graphics Cards in 3-Way CrossFireX™ or 3-Way SLI™ Mode	x8	N/A	x8	x16	N/A
Four Graphics Cards in 4-Way CrossFireX™ or 4-Way SLI™ Mode	x8	N/A	x8	x8	x8

English

1. In single VGA card mode, it is recommended to install a PCI Express x16 graphics card in the PCIE2 slot.
2. PCIE1, PCIE3, PCIE5 and PCIE7 slots will be disabled if PCIE2 slot is occupied.
3. In CrossFireX™ mode or SLI™ mode, please install the PCI Express x16 graphics cards in PCIE1 and PCIE5 slots. Both these two slots will work at x16 bandwidth.
4. In 3-Way CrossFireX™ or 3-Way SLI™ mode, please install the PCI Express x16 graphics cards in PCIE1, PCIE3 and PCIE5 slots. PCIE1 and PCIE3 will work at x8 bandwidth, while PCIE5 works at x16 bandwidth.
5. In 4-Way CrossFireX™ or 4-Way SLI™ mode, please install the PCI Express x16 graphics cards in PCIE1, PCIE3, PCIE5 and PCIE7 slots. All these four slots will work at x8 bandwidth.
6. Please connect a chassis fan to the motherboard's chassis fan connector (CHA_FAN1, CHA_FAN2 or CHA_FAN3) when using multiple graphics cards for better thermal environment.
7. Only PCIE1, PCIE2, PCIE3, PCIE5, PCIE6 and PCIE7 slots support Gen 3 speed. To run the PCI Express in Gen 3 speed, please install an Ivy Bridge CPU. If you install a Sandy Bridge CPU, the PCI Express will run only at PCI Express Gen 2 speed.

Installing an expansion card

Step 1. Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

Step 2. Remove the system unit cover (if your motherboard is already installed in a chassis).

Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.

Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

Step 5. Fasten the card to the chassis with screws.

Step 6. Replace the system cover.

English

2.7 SLI™, 3-Way SLI™, 4-Way SLI™ and Quad SLI™ Operation Guide

This motherboard supports NVIDIA® SLI™, 3-Way SLI™, 4-Way SLI™ and Quad SLI™ (Scalable Link Interface) technology that allows you to install up to four identical PCI Express x16 graphics cards. Currently, NVIDIA® SLI™ technology supports Windows® XP / XP 64-bit / Vista™ / Vista™ 64-bit / 7 / 7 64-bit OS. NVIDIA® 3-Way SLI™, 4-Way SLI™ and Quad SLI™ technology supports Windows® Vista™ / Vista™ 64-bit / 7 / 7 64-bit OS only. Please follow the installation procedures in this section.

Requirements

1. For SLI™ technology, you should have two identical SLI™-ready graphics cards that are NVIDIA® certified. For 3-Way SLI™ technology you should have three, whereas for 4-Way SLI™ technology you should have four. For Quad SLI™ technology, you should have two identical Quad SLI™-ready graphics cards that are NVIDIA® certified.
2. Make sure that your graphics card driver supports NVIDIA® SLI™ technology. Download the driver from NVIDIA website (www.nvidia.com).
3. Make sure that your power supply unit (PSU) can provide at least the minimum power required by your system. It is recommended to use NVIDIA® certified PSU. Please refer to NVIDIA® website for details.

2.7.1 Graphics Card Setup

2.7.1.1 Installing Two SLI™-Ready Graphics Cards

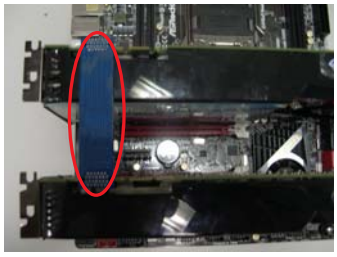
Step 1. Install identical SLI™-ready graphics cards that are NVIDIA® certified because different types of graphics cards will not work together properly. (Even the GPU chips version shall be the same.) Insert one graphics card into PCIE1 slot and the other graphics card to PCIE5 slot. Make sure that the cards are properly seated on the slots.

English

Step2. If required, connect the auxiliary power source to the PCI Express graphics cards.

Step3. Align and insert the ASRock SLI_Bridge_3S Card to the goldfingers on each graphics card. Make sure the ASRock SLI_Bridge_3S Card is firmly in place.

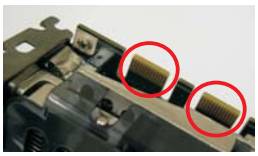
ASRock SLI_Bridge_3S Card



Step4. Connect a VGA cable or a DVI cable to the monitor connector or the DVI connector of the graphics card that is inserted to PCIE1 slot.

2.7.1.2 Installing Three SLI™-Ready Graphics Cards

Step 1. Install identical 3-Way SLI™-ready graphics cards that are NVIDIA® certified because different types of graphics cards will not work together properly. (Even the GPU chips version shall be the same.) Each graphics card should have two goldfingers for the 3-Way SLI Bridge connector. Insert one graphics card into PCIE1 slot, another graphics card to PCIE3 slot, and the other graphics card to PCIE5 slot. Make sure that the cards are properly seated on the slots.

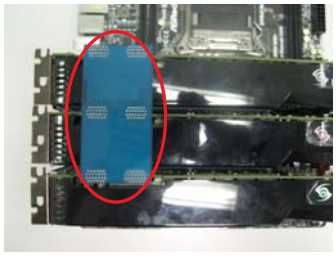


Two Goldfingers

Step2. Connect the auxiliary power source to the PCI Express graphics card. Please make sure that both power connectors on the PCI Express graphics card are connected. Repeat this step on the three graphics cards.

Step3. Align and insert the ASRock 3-Way SLI Bridge Card to the goldfingers on each graphics card. Make sure the ASRock 3-Way SLI Bridge Card is firmly in place.

ASRock 3-Way SLI Bridge Card

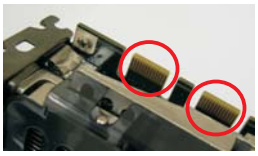


Step4. Connect a VGA cable or a DVI cable to the monitor connector or the DVI connector of the graphics card that is inserted to PCIE1 slot.

English

2.7.1.3 Installing Four SLI™-Ready Graphics Cards

Step 1. Install identical 4-Way SLI™-ready graphics cards that are NVIDIA® certified because different types of graphics cards will not work together properly. (Even the GPU chips version shall be the same.) Each graphics card should have two goldfingers for the ASRock SLI Bridge Card connectors. Insert one graphics card into the PCIE1 slot, another graphics card into the PCIE3 slot, the third graphics card into the PCIE5 slot and the last graphics card into the PCIE7 slot. Make sure that the cards are properly seated on the slots.

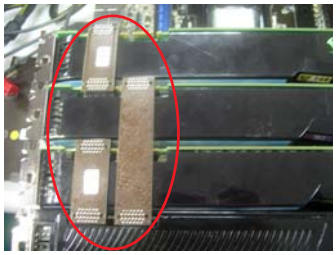


Two Goldfingers

Step2. Connect the auxiliary power source to the PCI Express graphics card. Please make sure that both power connectors on the PCI Express graphics card are connected. Repeat this step on the other graphics cards.

Step3. Align and insert an ASRock SLI Bridge Card to the goldfingers of the first and second graphics card. Install the second ASRock SLI Bridge Card to the goldfingers of the third and fourth graphics card. Connect the second and the fourth graphics card with the ASRock SLI_Bridge_3S Card. Make sure the ASRock SLI Bridge Cards are firmly in place.

2 ASRock SLI_Bridge Cards and an ASRock SLI_Bridge_3S Card



Step4. Connect a VGA cable or a DVI cable to the monitor connector or the DVI connector of the graphics card that is inserted to PCIE1 slot.

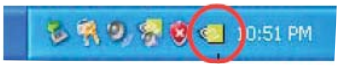
English

2.7.2 Driver Installation and Setup

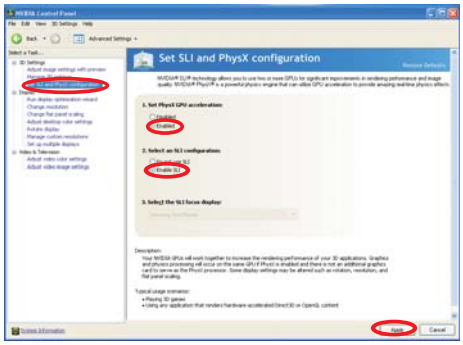
Install the graphics card drivers to your system. After that, you can enable the Multi-Graphics Processing Unit (GPU) feature in the NVIDIA® nView system tray utility. Please follow the below procedures to enable the multi-GPU feature.

For Windows® XP / XP 64-bit OS:
(For SLI™ mode only)

A. Double-click **NVIDIA Settings icon** on your Windows® taskbar.



B. From the pop-up menu, select **Set SLI and PhysX configuration**. In **Set PhysX GPU acceleration** item, please select **Enabled**. In **Select an SLI configuration** item, please select **Enable SLI**. And click **Apply**.



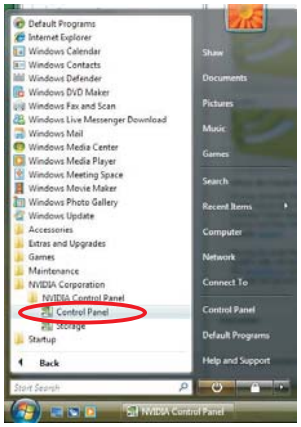
C. Reboot your system.

D. You can freely enjoy the benefit of SLI™ feature.

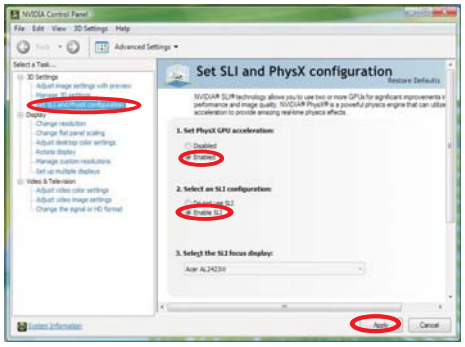
English

For Windows® Vista™ / Vista™ 64-bit / 7 / 7 64-bit OS:
(For SLI™ and Quad SLI™ mode)

A. Click the **Start** icon on your Windows taskbar.
B. From the pop-up menu, select **All Programs**, and then click **NVIDIA Corporation**.
C. Select **NVIDIA Control Panel** tab.
D. Select **Control Panel** tab.



E. From the pop-up menu, select **Set SLI and PhysX configuration**. In **Set PhysX GPU acceleration** item, please select **Enabled**. In **Select an SLI configuration** item, please select **Enable SLI**. And click **Apply**.



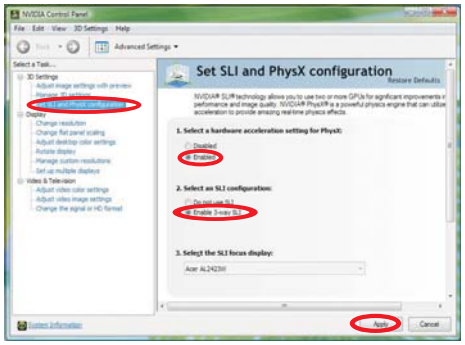
F. Reboot your system.
G. You can freely enjoy the benefit of SLI™ or Quad SLI™ feature.

English

For Windows® Vista™ / Vista™ 64-bit / 7 / 7 64-bit OS:
(For 3-Way SLI™ or 4-Way SLI™ mode)

A. Follow step A to D on page 26.

B. From the pop-up menu, select **Set SLI and PhysX configuration**. In **Select a hardware acceleration setting for PhysX** item, please select **Enabled**. In **Select an SLI configuration** item, please select **Enable 3-way SLI** or **Enable 4-way SLI**. And click **Apply**.



C. Reboot your system.

D. You can freely enjoy the benefits of 3-Way SLI™ or 4-Way SLI™.

* SLI™ appearing here is a registered trademark of NVIDIA® Technologies Inc., and is used only for identification or explanation and to the owners' benefit, without intent to infringe.

English

2.8 CrossFireX™, 3-Way CrossFireX™, 4-Way CrossFireX™ and Quad CrossFireX™ Operation Guide

This motherboard supports CrossFireX™, 3-way CrossFireX™, 4-way CrossFireX™ and Quad CrossFireX™. CrossFireX™ technology offers the most advantageous means available of combining multiple high performance Graphics Processing Units (GPU) in a single PC. Combining a range of different operating modes with intelligent software design and an innovative interconnect mechanism, CrossFireX™ enables the highest possible level of performance and image quality in any 3D application. Currently CrossFireX™ is supported with Windows® XP / Vista™ / 7 OS. 3-way CrossFireX™, 4-way CrossFireX™ and Quad CrossFireX™ are supported with Windows® Vista™ / 7 OS only. Please check AMD's website for CrossFireX™ driver updates.

1. If a customer incorrectly configures their system they will not see the performance benefits of CrossFireX™. All three CrossFireX™ components, a CrossFireX™ Ready graphics card, a CrossFireX™ Ready motherboard and a CrossFireX™ Edition co-processor graphics card, must be installed correctly to benefit from the CrossFireX™ multi-GPU platform.
2. If you pair a 12-pipe CrossFireX™ Edition card with a 16-pipe card, both cards will operate as 12-pipe cards while in CrossFireX™ mode.

2.8.1 Graphics Card Setup

2.8.1.1 Installing Two CrossFireX™-Ready Graphics Cards

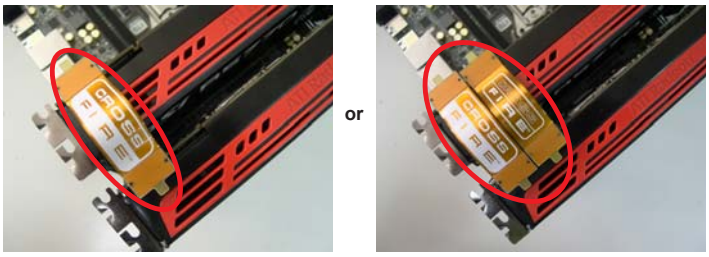
Different CrossFireX™ cards may require different methods to enable CrossFireX™ feature. For other CrossFireX™ cards that AMD has released or will release in the future, please refer to AMD graphics card manuals for detailed installation guide.

Step 1. Insert one Radeon graphics card into PCIE1 slot and the other Radeon graphics card to PCIE5 slot. Make sure that the cards are properly seated on the slots.

English

Step 2. Connect two Radeon graphics cards by installing a CrossFire Bridge on the CrossFire Bridge Interconnects on the top of the Radeon graphics cards. (The CrossFire Bridge is provided with the graphics card you purchase, not bundled with this motherboard. Please refer to your graphics card vendor for details.)

CrossFire Bridge



Step 3. Connect the DVI monitor cable to the DVI connector on the Radeon graphics card on PCIE1 slot. (You may use the DVI to D-Sub adapter to convert the DVI connector to D-Sub interface, and then connect the D-Sub monitor cable to the DVI to D-Sub adapter.)

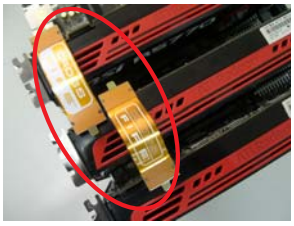
English

2.8.1.2 Installing Three CrossFireX™-Ready Graphics Cards

Step 1. Install identical 3-Way CrossFireX™-ready graphics cards that are AMD® certified because different types of graphics cards will not work together properly. (Even the GPU chips version shall be the same.) Insert one graphics card into PCIE1 slot, another graphics card to PCIE3 slot, and the other graphics card to PCIE5 slot. Make sure that the cards are properly seated on the slots.

Step 2. Use one CrossFire™ Bridge to connect the Radeon graphics cards on PCIE1 and PCIE3 slots, and use the other CrossFire™ Bridge to connect the Radeon graphics cards on PCIE3 and PCIE5 slots. (The CrossFire™ Bridge is provided with the graphics card you purchase, not bundled with this motherboard. Please refer to your graphics card vendor for details.)

CrossFire™ Bridge



Step 3. Connect the DVI monitor cable to the DVI connector on the Radeon graphics card on PCIE1 slot. (You may use the DVI to D-Sub adapter to convert the DVI connector to D-Sub interface, and then connect the D-Sub monitor cable to the DVI to D-Sub adapter.)

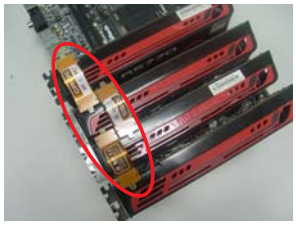
English

2.8.1.3 Installing Four CrossFireX™-Ready Graphics Cards

Step 1. Install identical 4-Way CrossFireX™-ready graphics cards that are AMD® certified because different types of graphics cards will not work together properly. (Even the GPU chips version shall be the same.) Insert one graphics card into PCIE1 slot, another graphics card into PCIE3 slot, the third graphics card into PCIE5 slot and the last graphics card into PCIE7 slot. Make sure that the cards are properly seated on the slots.

Step 2. Use one CrossFire™ Bridge to connect the Radeon graphics cards on PCIE1 and PCIE3 slots, another CrossFire™ Bridge to connect the Radeon graphics cards on PCIE3 and PCIE5 slots, and use the third CrossFire™ Bridge to connect the Radeon graphics cards on PCIE5 and PCIE7 slots. (The CrossFire™ Bridge is provided with the graphics card you purchase, not bundled with this motherboard. Please refer to your graphics card vendor for details.)

CrossFire™ Bridge



Step 3. Connect the DVI monitor cable to the DVI connector on the Radeon graphics card on PCIE1 slot. (You may use the DVI to D-Sub adapter to convert the DVI connector to D-Sub interface, and then connect the D-Sub monitor cable to the DVI to D-Sub adapter.)

English

2.8.2 Driver Installation and Setup

Step 1. Power on your computer and boot into OS.

Step 2. Remove the AMD driver if you have any VGA driver installed in your system.

The Catalyst Uninstaller is an optional download. We recommend using this utility to uninstall any previously installed Catalyst drivers prior to installation. Please check AMD website for ATI™ driver updates.

Step 3. Install the required drivers to your system.

For Windows® XP OS:

A. AMD recommends Windows® XP Service Pack 2 or higher to be installed (If you have Windows® XP Service Pack 2 or higher installed in your system, there is no need to download it again): http://www.microsoft.com/windowsxp/sp2/default.mspx

B. You must have Microsoft .NET Framework installed prior to downloading and installing the CATALYST Control Center. Please check Microsoft website for details.

For Windows® 7 / Vista™ OS:

Install the CATALYST Control Center. Please check AMD website for details.

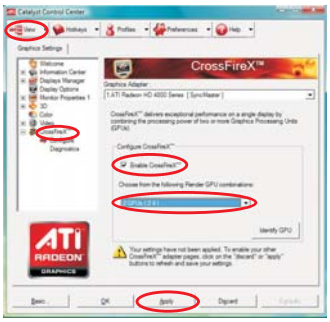
Step 4. Restart your computer.

Step 5. Install the VGA card drivers to your system, and restart your computer. Then you will find “ATI Catalyst Control Center” on your Windows® taskbar.

ATI Catalyst Control Center

English

Step 6. Double-click “ATI Catalyst Control Center”. Click “View”, select “CrossFireX™”, and then check the item “Enable CrossFireX™”. Select “2 GPUs” and click “Apply” (if you install two Radeon graphics cards). Select “3 GPUs” and click “OK” (if you install three Radeon graphics cards). Select “4 GPUs” and click “OK” (if you install four Radeon graphics cards).



Although you have selected the option “Enable CrossFire™”, the CrossFireX™ function may not work actually. Your computer will automatically reboot. After restarting your computer, please confirm whether the option “Enable CrossFire™” in “ATI Catalyst Control Center” is selected or not; if not, please select it again, and then you are able to enjoy the benefit of CrossFireX™ feature.

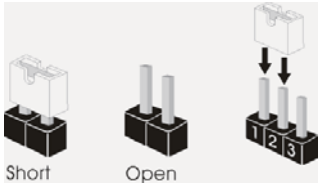
Step 7. You can freely enjoy the benefit of CrossFireX™, 3-Way CrossFireX™, 4-Way CrossFireX™ or Quad CrossFireX™ feature.

* CrossFireX™ appearing here is a registered trademark of AMD Technologies Inc., and is used only for identification or explanation and to the owners’ benefit, without intent to infringe.
* For further information of AMD CrossFireX™ technology, please check AMD website for updates and details.

English

2.9 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is “Short”. If no jumper cap is placed on pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when jumper cap is placed on these 2 pins.



Jumper	Setting	Description
Clear CMOS Jumper (CLRCMOS1) (see p.2, No. 22)	1_2 Default; 2_3 Clear CMOS	

Note: CLRCMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, user default profile, 1394 GUID and MAC address will be cleared only if the CMOS battery is removed.

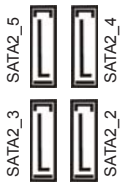
The Clear CMOS Switch has the same function as the Clear CMOS jumper.

English

2.10 Onboard Headers and Connectors

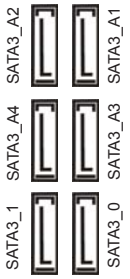
Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

Serial ATA2 Connectors
(SATA2_2_3: see p.2, No. 15)
(SATA2_4_5: see p.2, No. 16)



These four Serial ATA2 (SATA2) connectors support SATA data cables for internal storage devices. The current SATA2 interface allows up to 3.0 Gb/s data transfer rate.

Serial ATA3 Connectors
(SATA3_A1_A2: see p.2, No. 12)
(SATA3_A3_A4: see p.2, No. 13)
(SATA3_0_1: see p.2, No. 14)

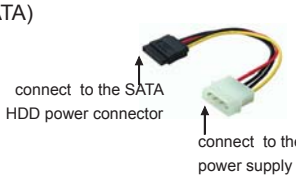


These six Serial ATA3 (SATA3) connectors support SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate. If the eSATA3 port on the rear I/O has been connected, the internal SATA3_A4 will not function.

Serial ATA (SATA) Data Cable
(Optional)

Either end of the SATA data cable can be connected to the SATA / SATA2 / SATA3 hard disk or the SATA2 / SATA3 connector on this motherboard.

Serial ATA (SATA) Power Cable
(Optional)



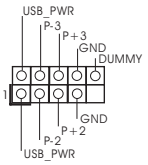
Please connect the black end of SATA power cable to the power connector on each drive. Then connect the white end of SATA power cable to the power connector of the power supply.

English

USB 2.0 Headers

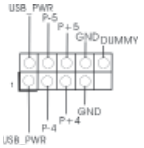
(9-pin USB2_3)

(see p.2, No. 25)



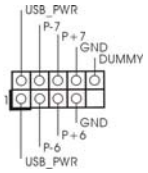
(9-pin USB4_5)

(see p.2, No. 26)



(9-pin USB6_7)

(see p.2, No. 27)

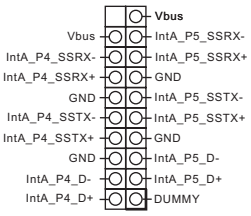


Besides two default USB 2.0 ports on the I/O panel, there are three USB 2.0 headers on this motherboard. Each USB 2.0 header can support two USB 2.0 ports.

USB 3.0 Header

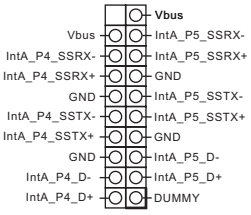
(19-pin USB3_9_10)

(see p.2, No. 10)



(19-pin USB3_11_12)

(see p.2, No. 9)

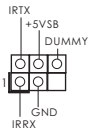


Besides eight default USB 3.0 ports on the I/O panel, there are two USB 3.0 headers on this motherboard. Each USB 3.0 header can support two USB 3.0 ports.

Infrared Module Header

(5-pin IR1)

(see p.2, No. 32)

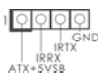


This header supports an optional wireless transmitting and receiving infrared module.

Consumer Infrared Module Header

(4-pin CIR1)

(see p.2 No. 28)



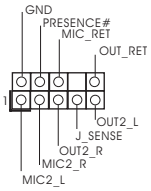
This header can be used to connect the remote controller receiver.

English

Front Panel Audio Header

(9-pin HD_AUDIO1)

(see p.2, No. 35)



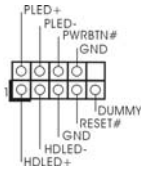
This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system.
2. If you use AC'97 audio panel, please install it to the front panel audio header as below:
   A. Connect Mic_IN (MIC) to MIC2_L.
   B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L.
   C. Connect Ground (GND) to Ground (GND).
   D. MIC_RET and OUT_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel.
   E. To activate the front mic.
      For Windows® XP / XP 64-bit OS:
      Select "Mixer". Select "Recorder". Then click "FrontMic".
      For Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS:
      Go to the "FrontMic" Tab in the Realtek Control panel. Adjust "Recording Volume".

System Panel Header

(9-pin PANEL1)

(see p.2, No. 20)



This header accommodates several system front panel functions.

Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

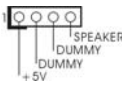
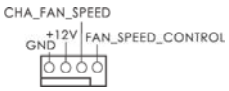
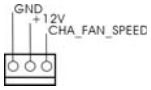
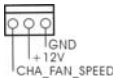
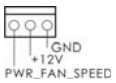
PWRBTN (Power Switch):
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.
RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.
PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the

English

system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assign-ments are matched correctly.

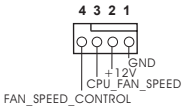
Chassis Speaker Header (4-pin SPEAKER 1) (see p.2, No. 21)		Please connect the chassis speaker to this header.
Power LED Header (3-pin PLED1) (see p.2, No. 19)		Please connect the chassis power LED to this header to indicate system power status. The LED is on when the system is operating. The LED keeps blinking in S1/S3 state. The LED is off in S4 state or S5 state (power off).
Chassis and Power Fan Connectors (4-pin CHA_FAN1) (see p.2, No. 30)		Please connect the fan cables to the fan connectors and match the black wire to the ground pin. CHA_FAN1, CHA_FAN2 and CHA_FAN3 support Fan Control.
(3-pin CHA_FAN2) (see p.2, No. 29)		
(3-pin CHA_FAN3) (see p.2, No. 44)		
(3-pin PWR_FAN1) (see p.2, No. 3)		

English

CPU Fan Connectors

(4-pin CPU_FAN1)

(see p.2, No. 4)



Please connect the CPU fan cable to the connector and match the black wire to the ground pin.

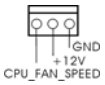
Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function. If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3.

Pin 1-3 Connected

3-Pin Fan Installation

(3-pin CPU_FAN2)

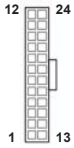
(see p.2, No. 5)



ATX Power Connector

(24-pin ATXPWR1)

(see p.2, No. 8)



Please connect an ATX power supply to this connector.

Though this motherboard provides 24-pin ATX power connector, it can still work if you adopt a traditional 20-pin ATX power supply. To use the 20-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 13.

20-Pin ATX Power Supply Installation

ATX 12V Power Connector

(8-pin ATX12V1)

(see p.2, No. 1)

Please connect an ATX 12V power supply to this connector.

Though this motherboard provides 8-pin ATX 12V power connector, it can still work if you adopt a traditional 4-pin ATX 12V power supply. To use the 4-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 5.

4-Pin ATX 12V Power Supply Installation

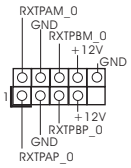
English

SLI/XFIRE Power Connector
(4-pin SLI/XFIRE_PWR1)
(see p.2 No. 43)

SLI/XFIRE_POWER1

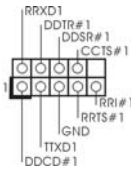
It is not necessary to use this connector, but please connect it with a hard disk power connecor when two graphics cards are plugged to this motherboard.

IEEE 1394 Header
(9-pin FRONT_1394)
(see p.2 No. 31)



Besides one default IEEE 1394 port on the I/O panel, there is one IEEE 1394 header (FRONT_1394) on this motherboard. This IEEE 1394 header can support one IEEE 1394 port.

Serial port Header
(9-pin COM1)
(see p.2, No. 33)



This COM1 header supports a serial port module.

HDMI_SPDIF Header
(2-pin HDMI_SPDIF1)
(see p.2, No. 34)

HDMI_SPDIF header, providing SPDIF audio output to HDMI VGA card, allows the system to connect HDMI Digital TV/ projector/LCD devices. Please connect the HDMI_SPDIF connector of HDMI VGA card to this header.

English

2.11 Smart Switches

The motherboard has three smart switches: power switch, reset switch and clear CMOS switch, allowing users to quickly turn on/off or reset the sytem clear the CMOS values.

Power Switch (PWRBTN) (see p.2 No. 18)		Power Switch is a smart switch, allowing users to quickly turn on/off the system.
Reset Switch (RSTBTN) (see p.2 No. 17)		Reset Switch is a smart switch, allowing users to quickly reset the system.
Clear CMOS Switch (CLRCBTN) (see p.3 No. 17)		Clear CMOS Switch is a smart switch, allowing users to quickly clear the CMOS values.

English

2.12 Dr. Debug

Dr. Debug is used to provide code information, which makes troubleshooting even easier. Please see the diagrams below for reading the Dr. Debug codes.

Status Code	Description
0x00	Not used
0x01	Power on. Reset type detection (soft/hard)
0x02	AP initialization before microcode loading
0x03	North Bridge initialization before microcode loading
0x04	South Bridge initialization before microcode loading
0x05	OEM initialization before microcode loading
0x06	Microcode loading
0x07	AP initialization after microcode loading
0x08	North Bridge initialization after microcode loading
0x09	South Bridge initialization after microcode loading
0x0A	OEM initialization after microcode loading
0x0B	Cache initialization
0x0C – 0x0D	Reserved for future AMI SEC error codes
0x0E	Microcode not found
0x0F	Microcode not loaded
0x10	PEI Core is started
0x11	Pre-memory CPU initialization is started
0x12	Pre-memory CPU initialization (CPU module specific)
0x13	Pre-memory CPU initialization (CPU module specific)
0x14	Pre-memory CPU initialization (CPU module specific)
0x15	Pre-memory North Bridge initialization is started
0x16	Pre-Memory North Bridge initialization (North Bridge module specific)
0x17	Pre-Memory North Bridge initialization (North Bridge module specific)
0x18	Pre-Memory North Bridge initialization (North Bridge module specific)
0x19	Pre-memory South Bridge initialization is started
0x1A	Pre-memory South Bridge initialization (South Bridge module specific)
0x1B	Pre-memory South Bridge initialization (South Bridge module specific)
0x1C	Pre-memory South Bridge initialization (South Bridge module specific)
0x1D – 0x2A	OEM pre-memory initialization codes
0x2B	Memory initialization. Serial Presence Detect (SPD) data reading
0x2C	Memory initialization. Memory presence detection
0x2D	Memory initialization. Programming memory timing information
0x2E	Memory initialization. Configuring memory
0x2F	Memory initialization (other)
0x30	Reserved for ASL
0x31	Memory Installed
0x32	CPU post-memory initialization is started
0x33	CPU post-memory initialization. Cache initialization
0x34	CPU post-memory initialization. Application Processor(s) (AP) initialization
0x35	CPU post-memory initialization. Boot Strap Processor (BSP) selection
0x36	CPU post-memory initialization. System Management Mode (SMM) initialization

0x37	Post-Memory North Bridge initialization is started
0x38	Post-Memory North Bridge initialization (North Bridge module specific)
0x39	Post-Memory North Bridge initialization (North Bridge module specific)
0x3A	Post-Memory North Bridge initialization (North Bridge module specific)
0x3B	Post-Memory South Bridge initialization is started
0x3C	Post-Memory South Bridge initialization (South Bridge module specific)
0x3D	Post-Memory South Bridge initialization (South Bridge module specific)
0x3E	Post-Memory South Bridge initialization (South Bridge module specific)
0x3F-0x4E	OEM post memory initialization codes
0x4F	DXE IPL is started
0x50	Memory initialization error. Invalid memory type or incompatible memory speed
0x51	Memory initialization error. SPD reading has failed
0x52	Memory initialization error. Invalid memory size or memory modules do not match
0x53	Memory initialization error. No usable memory detected
0x54	Unspecified memory initialization error
0x55	Memory not installed
0x56	Invalid CPU type or Speed
0x57	CPU mismatch
0x58	CPU self test failed or possible CPU cache error
0x59	CPU micro-code is not found or micro-code update is failed
0x5A	Internal CPU error
0x5B	reset PPI is not available
0x5C-0x5F	Reserved for future AMI error codes
0xE0	S3 Resume is stared (S3 Resume PPI is called by the DXE IPL)
0xE1	S3 Boot Script execution
0xE2	Video repost
0xE3	OS S3 wake vector call
0xE4-0xE7	Reserved for future AMI progress codes
0xE8	S3 Resume Failed
0xE9	S3 Resume PPI not Found
0xEA	S3 Resume Boot Script Error
0xEB	S3 OS Wake Error
0xEC-0xEF	Reserved for future AMI error codes
0xF0	Recovery condition triggered by firmware (Auto recovery)
0xF1	Recovery condition triggered by user (Forced recovery)
0xF2	Recovery process started
0xF3	Recovery firmware image is found
0xF4	Recovery firmware image is loaded
0xF5-0xF7	Reserved for future AMI progress codes
0xF8	Recovery PPI is not available
0xF9	Recovery capsule is not found
0xFA	Invalid recovery capsule
0xFB – 0xFF	Reserved for future AMI error codes
0x60	DXE Core is started
0x61	NVRAM initialization

0x62	Installation of the South Bridge Runtime Services
0x63	CPU DXE initialization is started
0x64	CPU DXE initialization (CPU module specific)
0x65	CPU DXE initialization (CPU module specific)
0x66	CPU DXE initialization (CPU module specific)
0x67	CPU DXE initialization (CPU module specific)
0x68	PCI host bridge initialization
0x69	North Bridge DXE initialization is started
0x6A	North Bridge DXE SMM initialization is started
0x6B	North Bridge DXE initialization (North Bridge module specific)
0x6C	North Bridge DXE initialization (North Bridge module specific)
0x6D	North Bridge DXE initialization (North Bridge module specific)
0x6E	North Bridge DXE initialization (North Bridge module specific)
0x6F	North Bridge DXE initialization (North Bridge module specific)
0x70	South Bridge DXE initialization is started
0x71	South Bridge DXE SMM initialization is started
0x72	South Bridge devices initialization
0x73	South Bridge DXE Initialization (South Bridge module specific)
0x74	South Bridge DXE Initialization (South Bridge module specific)
0x75	South Bridge DXE Initialization (South Bridge module specific)
0x76	South Bridge DXE Initialization (South Bridge module specific)
0x77	South Bridge DXE Initialization (South Bridge module specific)
0x78	ACPI module initialization
0x79	CSM initialization
0x7A – 0x7F	Reserved for future AMI DXE codes
0x80 – 0x8F	OEM DXE initialization codes
0x90	Boot Device Selection (BDS) phase is started
0x91	Driver connecting is started
0x92	PCI Bus initialization is started
0x93	PCI Bus Hot Plug Controller Initialization
0x94	PCI Bus Enumeration
0x95	PCI Bus Request Resources
0x96	PCI Bus Assign Resources
0x97	Console Output devices connect
0x98	Console input devices connect
0x99	Super IO Initialization
0x9A	USB initialization is started
0x9B	USB Reset
0x9C	USB Detect
0x9D	USB Enable
0x9E – 0x9F	Reserved for future AMI codes
0xA0	IDE initialization is started
0xA1	IDE Reset
0xA2	IDE Detect
0xA3	IDE Enable
0xA4	SCSI initialization is started
0xA5	SCSI Reset

0xA6	SCSI Detect
0xA7	SCSI Enable
0xA8	Setup Verifying Password
0xA9	Start of Setup
0xAA	Reserved for ASL (see ASL Status Codes section below)
0xAB	Setup Input Wait
0xAC	Reserved for ASL (see ASL Status Codes section below)
0xAD	Ready To Boot event
0xAE	Legacy Boot event
0xAF	Exit Boot Services event
0xB0	Runtime Set Virtual Address MAP Begin
0xB1	Runtime Set Virtual Address MAP End
0xB2	Legacy Option ROM Initialization
0xB3	System Reset
0xB4	USB hot plug
0xB5	PCI bus hot plug
0xB6	Clean-up of NVRAM
0xB7	Configuration Reset (reset of NVRAM settings)
0xB8 – 0xBF	Reserved for future AMI codes
0xC0 – 0xCF	OEM BDS initialization codes
0xD0	CPU initialization error
0xD1	North Bridge initialization error
0xD2	South Bridge initialization error
0xD3	Some of the Architectural Protocols are not available
0xD4	PCI resource allocation error. Out of Resources
0xD5	No Space for Legacy Option ROM
0xD6	No Console Output Devices are found
0xD7	No Console Input Devices are found
0xD8	Invalid password
0xD9	Error loading Boot Option (LoadImage returned error)
0xDA	Boot Option is failed (StartImage returned error)
0xDB	Flash update is failed
0xDC	Reset protocol is not available

2.13 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from up to bottom side to install those required drivers. Therefore, the drivers you install can work properly.

2.14 Installing Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit With RAID Functions

If you want to install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit on your SATA / SATA2 / SATA3 HDDs with RAID functions, please refer to the document at the following path in the Support CD for detailed procedures:

..\ RAID Installation Guide

2.15 Installing Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit Without RAID Functions

If you want to install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit OS on your SATA / SATA2 / SATA3 HDDs without RAID functions, please follow below procedures according to the OS you install.

2.15.1 Installing Windows® XP / XP 64-bit Without RAID Functions

If you want to install Windows® XP / XP 64-bit OS on your SATA / SATA2 / SATA3 HDDs without RAID functions, please follow below steps.

AHCI mode is not supported under Windows® XP / XP 64-bit.

Using SATA / SATA2 / SATA3 HDDs without NCQ function

STEP 1: Set Up UEFI.

A. Enter UEFI SETUP UTILITY → Advanced screen → Storage Configuration.

B. Set the option “SATA Mode Selection” to [IDE] for SATA2_2 to SATA2_5 and SATA3_0 and SATA3_1 ports.
Set the option “ASMedia SATA3 Mode” to [IDE] for SATA3_A1 to SATA3_A4 ports.

STEP 2: Install Windows® XP / XP 64-bit OS on your system.

English

2.15.2 Installing Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit Without RAID Functions

If you want to install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your SATA / SATA2 / SATA3 HDDs without RAID functions, please follow below steps.

Using SATA / SATA2 / SATA3 HDDs without NCQ function

STEP 1: Set Up UEFI.

A. Enter UEFI SETUP UTILITY → Advanced screen → Storage Configuration.

B. Set the option "SATA Mode Selection" to [IDE] for SATA2_2 to SATA2_5 and SATA3_0 and SATA3_1 ports.
Set the option "ASMedia SATA3 Mode" to [IDE] for SATA3_A1 to SATA3_A4 ports.

STEP 2: Install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system.

Using SATA / SATA2 / SATA3 HDDs with NCQ function

STEP 1: Set Up UEFI.

A. Enter UEFI SETUP UTILITY → Advanced screen → Storage Configuration.

B. Set the option "SATA Mode Selection" to [AHCI] for SATA2_2 to SATA2_5 and SATA3_0 and SATA3_1 ports.
Set the option "ASMedia SATA3 Mode" to [AHCI] for SATA3_A1 to SATA3_A4 ports.

STEP 2: Install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system.

English

2.16 Teaming Function Operation Guide

Dual LAN with Teaming function enabled on this motherboard allows two single connections to act as one single connection for twice the transmission bandwidth, making data transmission more effective and improving the quality of transmission of distant images. Fault tolerance on the dual LAN network prevents network downtime by transferring the workload from a failed port to a working port.

The speed of transmission is subject to the actual network environment or status even with Teaming enabled.

Before setting up Teaming function, please make sure if your Switch (or Router) could support Teaming (IEEE 802.3ad Link Aggregation) function. Then, please refer to following steps to set up Teaming function.

1. Install Teaming driver from the following path of motherboard Support CD:
   32-bit: **.. \Drivers\LAN\Broadcom\Teaming\IA32**
   64-bit: **.. \Drivers\LAN\Broadcom\Teaming\x64**
   (This is a special driver for Teaming function only. If you don't want to use Teaming, please install the LAN driver provided by our support CD link.)

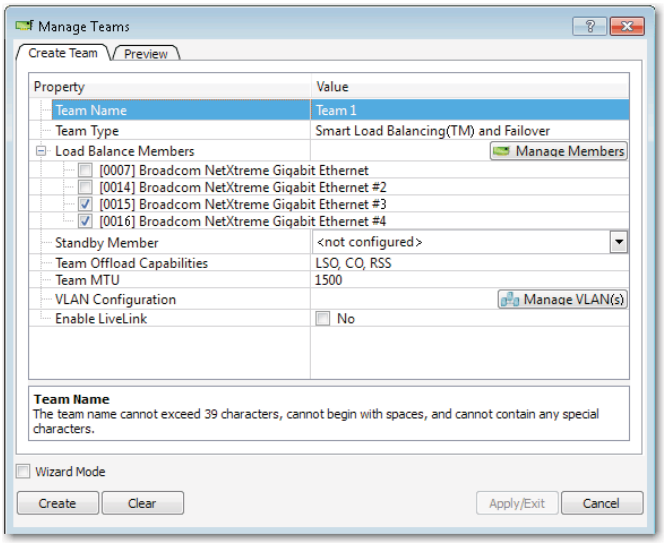
2. From the **Teams** menu, select **Create Team**, or right-click one of the devices in the “Unassigned Adapters” section and select **Create a Team**. This option is not available if there are no devices listed in the “Unassigned Adapters” sections, which means all adapters are already assigned to teams.

3. Click **Expert Mode**.

   * If you want to always use Expert Mode to create a team, click Default to Expert Mode on next start.

English

4. Click the **Create Team** tab.



* The **Create Team** tab appears only if there are teamable adapters available.

5. Click the **Team Name** field to enter a team name.

6. Click the **Team Type** field to select a team type.

7. Assign any available adapter or adapters to the team by selecting the adapter from the **Load Balance Members** list. There must be at least one adapter selected in the **Load Balance Members** list.

8. You can assign any other available adapter to be a standby member by selecting it from the **Standby Member** list.

* There must be at least one Broadcom network adapter assigned to the team. The Large Send Offload (LSO), Checksum Offload (CO), and RSS indicate if the LSO, CO, and/or RSS properties are supported for the team. The LSO, CO, and RSS properties are enabled for a team only when all of the members support and are configured for the feature.

* Adding a network adapter to a team where its driver is disabled may negatively affect the offloading capabilities of the team. This may have an impact on the team's performance. Therefore, it is recommended that only driver-enabled network adapters be added as members to a team.

9. Type the value for **Team MTU**.

10. Click **Create** to save the team information.

11. Repeat steps 5. through 10. to define additional teams. As teams are defined, they can be selected from the team list, but they have not yet been created. Click the **Preview** tab to view the team structure before applying the changes.

12. Click **Apply/Exit** to create all the teams you have defined and exit the Manage Teams window.

13. Click **Yes** when the message is displayed indicating that the network connection will be temporarily interrupted.

* The team name cannot exceed 39 characters, cannot begin with spaces, and cannot contain any of the following characters: & \ / : * ? < > |

* Team names must be unique. If you attempt to use a team name more than once, an error message is displayed indicating that the name already exists.

* The maximum number of team members is 8.

* When team configuration has been correctly performed, a virtual team adapter driver is created for each configured team.

* If you disable a virtual team and later want to reenable it, you must first disable and reenable all team members before you reenable the virtual team.

* When you create Generic Trunking and Link Aggregation teams, you cannot designate a standby member. Standby members work only with Smart Load Balancing and Failover and SLB (Auto-Fallback Disable) types of teams.

* For an SLB (Auto-Fallback Disable) team, to restore traffic to the load balance members from the standby member, click the Fallback button on the Team Properties tab.

* When configuring an SLB team, although connecting team members to a hub is supported for testing, it is recommended to connect team members to a switch.

* Not all network adapters made by others are supported or fully certified for teaming.

14. Configure the team IP address.

    a. From **Control Panel**, double-click **Network Connections**.

    b. Right-click the name of the team to be configured, and then click **Properties**.

    c. On the **General** tab, click **Internet Protocol (TCP/IP)**, and then click **Properties**.

    d. Configure the IP address and any other necessary TCP/IP configuration for the team, and then click **OK** when finished.

3. BIOS Information

The Flash Memory on the motherboard stores BIOS Setup Utility. When you start up the computer, please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter BIOS Setup utility; otherwise, POST continues with its test routines. If you wish to enter BIOS Setup after POST, please restart the system by pressing <Ctl> + <Alt> + <Delete>, or pressing the reset button on the system chassis. The BIOS Setup program is designed to be user-friendly. It is a menu-driven program, which allows you to scroll through its various sub-menus and to select among the predetermined choices. For the detailed information about BIOS Setup, please refer to the User Manual (PDF file) contained in the Support CD.

4. Software Support CD information

This motherboard supports various Microsoft® Windows® operating systems: 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit. The Support CD that came with the motherboard contains necessary drivers and useful utilities that will enhance motherboard features. To begin using the Support CD, insert the CD into your CD-ROM drive. It will display the Main Menu automatically if “AUTORUN” is enabled in your computer. If the Main Menu does not appear automatically, locate and double-click on the file “ASSETUP.EXE” from the BIN folder in the Support CD to display the menus.

English

1. Einführung

Wir danken Ihnen für den Kauf des ASRock ***Z77 WS*** Motherboard, ein zuverlässiges Produkt, welches unter den ständigen, strengen Qualitätskontrollen von ASRock gefertigt wurde. Es bietet Ihnen exzellente Leistung und robustes Design, gemäß der Verpflichtung von ASRock zu Qualität und Halbarkeit. Diese Schnellinstallationsanleitung führt in das Motherboard und die schrittweise Installation ein. Details über das Motherboard finden Sie in der Bedienungsanleitung auf der Support-CD.

Da sich Motherboard-Spezifikationen und BIOS-Software verändern können, kann der Inhalt dieses Handbuches ebenfalls jederzeit geändert werden. Für den Fall, dass sich Änderungen an diesem Handbuch ergeben, wird eine neue Version auf der ASRock-Website, ohne weitere Ankündigung, verfügbar sein. Die neuesten Grafikkarten und unterstützten CPUs sind auch auf der ASRock-Website aufgelistet.
ASRock-Website: http://www.asrock.com
Wenn Sie technische Unterstützung zu Ihrem Motherboard oder spezifische Informationen zu Ihrem Modell benötigen, besuchen Sie bitte unsere Webseite: www.asrock.com/support/index.asp

1.1 Kartoninhalt

ASRock ***Z77 WS*** Motherboard
(ATX-Formfaktor: 30.5 cm x 24.4 cm; 12.0 Zoll x 9.6 Zoll)
ASRock ***Z77 WS*** Schnellinstallationsanleitung
ASRock ***Z77 WS*** Support-CD
Sechs Serial ATA (SATA) -Datenkabel (optional)
Ein Serial ATA (SATA) -Festplattenstromkabel (optional)
Ein I/O Shield
Zwei ASRock SLI_Bridge Karte
Ein ASRock SLI_Bridge_3S-Karte
Ein ASRock 3-Wege-SLI-Brücke-Karte

ASRock erinnert...
Zur besseren Leistung unter Windows® 7 / 7, 64 Bit / Vista™ / Vista™ 64 Bit empfehlen wir, die Speicherkonfiguration im BIOS auf den AHCI-Modus einzustellen. Hinweise zu den BIOS-Einstellungen finden Sie in der Bedienungsanleitung auf der mitgelieferten CD.

1.2 Spezifikationen

Plattform	- ATX-Formfaktor: 30.5 cm x 24.4 cm; 12.0 Zoll x 9.6 Zoll - Hochwertiges Gold-Kondensatordesign (100 % hochwertige japanische Fertigung leitfähiger Polymerkondensatoren)
CPU	- Unterstützt Intel® Core™ i7- / i5- / i3-Prozessoren der 3ten und 2ten Generation im LGA1155-Package - Digi Power-Design - 8 + 4-Stromphasendesign - Unterstützt Intel® Turbo Boost 2.0-Technologie - Unterstützt freigegebene CPU der K-Serie
Chipsatz	- Intel® Z77 - Unterstützt Intel® Rapid Start Technology und Smart Connect Technology
Speicher	- Dual-Kanal DDR3 Speichertechnologie - 4 x Steckplätze für DDR3 - Unterstützt DDR3 3000+(OC)/2400(OC)/2133(OC)/1866 (OC)/1600/1333/1066 non-ECC, ungepufferter Speicher - Max. Kapazität des Systemspeichers: 32GB - Unterstützt Intel® Extreme Memory Profile (XMP)1.3/1.2
Erweiterungs-steckplätze	- 5 x PCI-Express-3.0-x16-Steckplätze (PCIE2: x16-Modus oder PCIE1/PCIE3/PCIE5/PCIE7: x16/0/16/0-Modus oder x8/8/8/8-Modus) * PCIE 3.0 wird nur mit Intel® Ivy Bridge-Prozessor unterstützt. Mit Intel® Sandy Bridge-Prozessor wird nur PCIE 2.0 unterstützt. - 1 x PCI Express 2.0 x16-Steckplätze (PCIE4: x4-Modus) - 1 x PCI Express 2.0 x1-Steckplätze - Unterstützt AMD Quad CrossFireX™, 4-Way CrossFireX™, 3-Way CrossFireX™ und CrossFireX™ - NVIDIA® Quad SLI™, 4-Way SLI™, 3-Way SLI™ und SLI™
Onboard-VGA	* Integrierte Intel® HD-Grafikdarstellungen und die VGA-Ausgänge können nur durch GPU-integrierte Prozessoren unterstützt werden. - Unterstützt hochauflösende integrierte Intel®-Grafiklösungen: Intel® Quick-Sync-Video 2.0, Intel® InTru™ 3D, Intel® Clear-Video-Technik (HD), Intel® Insider™, Intel® HD Graphics 2500/4000 - Pixel Shader 5.0, DirectX 11 mit Intel® Ivy Bridge-Prozessor, Pixel Shader 4.1, DirectX 10.1 mit Intel® Sandy Bridge-Prozessor

	- Maximal gemeinsam genutzter Speicher 1760MB - Unterstützt HDMI 1.4a mit einer maximalen Auflösung von 1920 x 1200 bei 60 Hz - Unterstützt Auto Lip Sync, Deep Color (12bpc), xvYCC und HBR (High Bit Rate-Audio) mit HDMI (kompatibler HDMI-Bildschirm erforderlich) - Unterstützt HDCP-Funktion mit HDMI-Port - Unterstutzt 1080p Blu-ray (BD) / HD-DVD-Wiedergabe mit HDMI-Port
Audio	- 7.1 CH HD Audio mit dem Inhalt Schutz (Realtek ALC898 Audio Codec) - Premium Blu-ray-Audio-Unterstützung
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - Unterstützt Wake-On-LAN - Unterstützt energieeffizientes Ethernet 802.3az - Unterstützt Dual-LAN mit Teaming-Funktion - Unterstützt PXE
Lagerung	- 2 x SATA3-Anschlüsse (6,0 Gb/s) durch Intel® Z77; unterstützt RAID- (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage und Intel Smart Response-Technologie), NCQ-, AHCI-und „Hot Plug“ (Hot-Plugging)-Funktionen - 4 x SATA 3-Anschlüsse (6,0 Gb/s) durch ASMedia ASM1061; unterstützt NCQ-, AHCI-und „Hot Plug“ (Hot-Plugging)-Funktionen (SATA3_A4-Anschluss wird mit dem eSATA3-Port geteilt) - 4 x SATA2-Anschlüsse (3,0 Gb/s) durch Intel® Z77; unterstützt RAID- (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage und Intel Smart Response-Technologie), NCQ-, AHCI-und „Hot Plug“ (Hot-Plugging)-Funktionen
E/A-Anschlüsse an der Rückseite	I/O Panel - 1 x PS/2-Tastaturanschluss/Mausanschluss - 1 x HDMI port - 1 x optischer SPDIF-Ausgang - 2 x Standard-USB 2.0-Anschlüsse - 1 x eSATA3-Anschluss - 8 x Standard-USB 3.0-Anschlüsse - 2 x RJ-45 LAN Ports mit LED (ACT/LINK LED und SPEED LED) - 1 x IEEE 1394 Port - 1 x CMOS löschen-Schalter mit LED

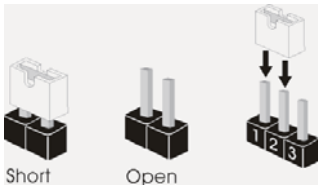
	- HD Audiobuchse: Lautsprecher hinten / Mitte / Bass / Audioeingang / Lautsprecher vorne / Mikrofon
USB3.0	- 4 x USB 3.0-Ports an der Rückseite durch Intel® Z77, unterstützt USB 1.0/2.0/3.0 mit bis zu 5 Gb/s - 4 x USB 3.0-Ports an der Rückseite durch Etron EJ188, unterstützt USB 1.0/2.0/3.0 mit bis zu 5 Gb/s - 2 x USB 3.0-Header (unterstützt vier USB 3.0-Ports) an der Vorderseite durch Etron EJ188, unterstützt USB 1.0/2.0/3.0 mit bis zu 5 Gb/s
Anschlüsse	- 1 x Infrarot-Modul-Header - 1 x Consumer Infrared-Modul-Header - 1 x COM-Anschluss-Header - 1 x HDMI_SPDIF-Anschluss - 1 x IEEE 1394-Anschluss - 1 x Betriebs-LED-Header - 2 x CPU lüfter-Anschluss (1 x 4-pin, 1 x 3-pin) - 3 x Gehäuse lüfter-Anschluss (1 x 4-pin, 2 x 3-pin) - 1 x Strom lüfter-Anschluss (3-pin) - 24-pin ATX-Netz-Header - 8-pin anschluss für 12V-ATX-Netzteil - SLI/XFIRE-Netz-Header - Anschluss für Audio auf der Gehäusevorderseite - 3 x USB 2.0-Anschlüsse (Unterstützung 6 zusätzlicher USB 2.0-Anschlüsse) - 2 x USB 3.0-Anschlüsse (Unterstützung 4 zusätzlicher USB 3.0-Anschlüsse) - 1 x Dr. Debug (Debug-LED mit 7 Segmenten) - 1 x Netzschalter mit LED - 1 x Rücksetzschalter (Reset) mit LED - 1 x CMOS löschen-Schalter mit LED
BIOS	- 64Mb AMIs Legal BIOS UEFI mit GUI-Unterstützung - Unterstützung für “Plug and Play” - ACPI 1.1-Weckfunktionen - JumperFree-Modus - SMBIOS 2.3.1 - CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA Stromspannung Multianpassung
CD d’assistance	- Treiber, Dienstprogramme, Antivirussoftware (Probeversion), CyberLink MediaEspresso 6.5-Testversion, ASRock MAGIX-Multimedia-Suite - OEM
Hardware Monitor	- Überwachung der CPU-Temperatur - Motherboardtemperaturerkennung

	- Drehzahlmessung für CPU/Gehäuse/Strom lüfter - Geräuscharmer CPU-/Gehäuselüfter (ermöglicht die au tomatische Anpassung der Gehäuselüftergeschwindigkeit durch CPU-Temperatur) - Mehrstufige Geschwindigkeitssteuerung für CPU/Gehäuse lüfter - Spannungsüberwachung: +12V, +5V, +3.3V, Vcore
Betriebssysteme	- Unterstützt Microsoft® Windows® 7 / 7 64-Bit / Vista™ / Vista™ 64-Bit / XP / XP 64-Bit
Zertifizierungen	- FCC, CE, WHQL - Gemäß Ökodesign-Richtlinie (ErP/EuP) (Stromversorgung gemäß Ökodesign-Richtlinie (ErP/EuP) erforderlich)

* Für die ausführliche Produktinformation, besuchen Sie bitte unsere Website: http://www.asrock.com

1.3 Einstellung der Jumper

Die Abbildung verdeutlicht, wie Jumper gesetzt werden. Werden Pins durch Jumperkappen verdeckt, ist der Jumper “Gebrückt”. Werden keine Pins durch Jumperkappen verdeckt, ist der Jumper “Offen”. Die Abbildung zeigt einen 3-Pin Jumper dessen Pin1 und Pin2 “Gebrückt” sind, bzw. es befindet sich eine Jumper-Kappe auf diesen beiden Pins.



Jumper	Einstellun	Beschreibung
CMOS löschen (CLRCMOS1, 3-Pin jumper) (siehe S.2, No. 22)	1_2 Default-Einstellung	2_3 CMOS löschen

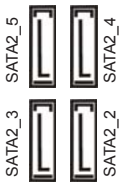
Hinweis: CLRCMOS1 ermöglicht Ihnen die Löschung der Daten im CMOS. Zum Löschen und Zurücksetzen der Systemparameter auf die Standardeinrichtung schalten Sie den Computer bitte aus und trennen das Netzkabel von der Stromversorgung. Warten Sie 15 Sekunden, schließen Sie dann Pin2 und Pin3 am CLRCMOS1 über einen Jumper fünf Sekunden lang kurz. Sie sollten das CMOS allerdings nicht direkt nach der BIOS-Aktualisierung löschen. Wenn Sie das CMOS nach Abschluss der BIOS-Aktualisierung löschen müssen, fahren Sie zuerst das System hoch. Fahren Sie es dann vor der CMOS-Löschung herunter. Bitte beachten Sie, dass Kennwort, Datum, Uhrzeit, benutzerdefiniertes Profil, 1394 GUID und MAC-Adresse nur gelöscht werden, wenn die CMOS-Batterie entfernt wird.

Der CMOS löschen-Schalter hat dieselbe Funktion wie der CMOS löschen-Jumper.

1.4 Integrierte Header und Anschlüsse

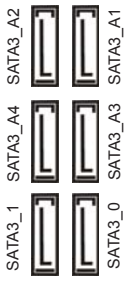
Integrierte Header und Anschlüsse sind KEINE Jumper. Setzen Sie KEINE Jumperkappen auf diese Header und Anschlüsse. Wenn Sie Jumperkappen auf Header und Anschlüsse setzen, wird das Motherboard unreparierbar beschädigt!

Seriell-ATA2-Anschlüsse
(SATA2_2_3: siehe S.2 - No. 15)
(SATA2_4_5: siehe S.2 - No. 16)



Diese vier Serial ATA2-(SATA2-)Verbínder unterstützten SATA-Datenkabel für interne Massenspeichergeräte. Die aktuelle SATA2- Schnittstelle ermöglicht eine Datenübertragungsrate bis 3,0 Gb/s.

Seriell-ATA3-Anschlüsse
(SATA3_A1_A2: siehe S.2 - No. 12)
(SATA3_A3_A4: siehe S.2 - No. 13)
(SATA3_0_1: siehe S.2 - No. 14)



Diese sechs Serial ATA3-(SATA3-)Verbínder unterstützten SATA-Datenkabel für interne Massenspeichergeräte. Die aktuelle SATA3- Schnittstelle ermöglicht eine Datenübertragungsrate bis 6,0 Gb/s. Wenn Sie die Festplatte am eSATA3-Port an der Rückblende anschließen, wird der interne SATA3_A4-Anschluss deaktiviert.

Serial ATA- (SATA-) Datenkabel
(Option)

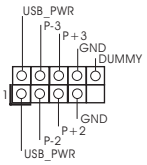
SJedes Ende des SATA Datenkabels kann an die SATA / SATA2 / SATA3 Festplatte oder das SATA2 / SATA3 Verbindungsstück auf dieser Hauptplatine angeschlossen werden.

Deutsch

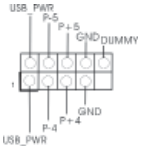
Serial ATA- (SATA-)
Stromversorgungskabel
(Option)

Verbinden Sie das schwarze Ende des SATA-Netzkabels mit dem Netzanschluss am Laufwerk. Verbinden Sie dann das weiße Ende des SATA-Stromversorgungskabels mit dem Stromanschluss des Netzteils.

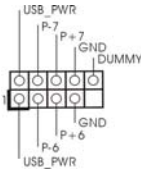
USB 2.0-Header
(9-pol. USB2_3)
(siehe S.2 - No. 25)



(9-pol. USB4_5)
(siehe S.2 - No. 26)

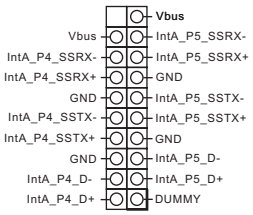


(9-pol. USB6_7)
(siehe S.2 - No. 27)

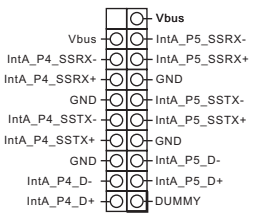


Zusätzlich zu den zwei üblichen USB 2.0-Ports an den I/O-Anschlüssen befinden sich drei USB 2.0- Anschlussleisten am Motherboard. Pro USB 2.0-Anschlussleiste werden zwei USB 2.0-Ports unterstützt.

USB 3.0-Header
(19-pol. USB3_9_10)
(siehe S.2 - No. 10)



(19-pol. USB3_11_12)
(siehe S.2 - No. 9)

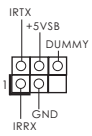


Neben acht Standard-USB 3.0-Ports am E/A-Panel befindet sich zwei USB 3.0-Header an diesem Motherboard. Pro USB 3.0-Anschlussleiste werden zwei USB 3.0-Ports unterstützt.

Infrarot-Modul-Header

(5-pin IR1)

(siehe S.2 - No. 32)

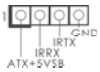


Dieser Header unterstützt ein optionales, drahtloses Sende- und Empfangs-Infrarotmodul.

Consumer Infrared-Modul-Header

(4-pin CIR1)

(siehe S.2 - No. 28)

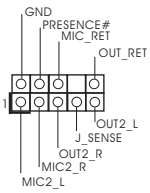


Dieser Header kann zum Anschließen Remote-Empfänger.

Anschluss für Audio auf der Gehäusevorderseite

(9-Pin HD_AUDIO1)

(siehe S.2 - No. 35)



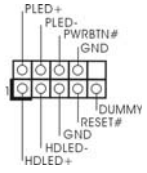
Dieses Interface zu einem Audio-Panel auf der Vorder seite Ihres Gehäuses, ermöglicht Ihnen eine bequeme Anschlussmöglichkeit und Kontrolle über Audio-Geräte.

1. High Definition Audio unterstützt Jack Sensing (automatische Erkennung falsch angeschlossener Geräte), wobei jedoch die Bildschirmverdrahtung am Gehäuse HDA unterstützen muss, um richtig zu funktionieren. Beachten Sie bei der Installation im System die Anweisungen in unserem Handbuch und im Gehäusehandbuch.
2. Wenn Sie die AC'97-Audioleiste verwenden, installieren Sie diese wie nachstehend beschrieben an der Front-Audioanschlussleiste:
   A. Schließen Sie Mic_IN (MIC) an MIC2_L an.
   B. Schließen Sie Audio_R (RIN) an OUT2_R und Audio_L (LIN) an OUT2_L an.
   C. Schließen Sie Ground (GND) an Ground (GND) an.
   D. MIC_RET und OUT_RET sind nur für den HD-Audioanschluss gedacht. Diese Anschlüsse müssen nicht an die AC'97-Audioleiste angeschlossen werden.
   E. So aktivieren Sie das Mikrofon an der Vorderseite.
      Bei den Betriebssystemen Windows® XP / XP 64 Bit:
      Wählen Sie „Mixer". Wählen Sie „Recorder" (Rekorder). Klicken Sie dann auf „FrontMic" (Vorderes Mikrofon).
      Bei den Betriebssystemen Windows® 7 / 7 64 Bit / Vista™ / Vista™ 64 Bit:
      Wählen Sie im Realtek-Bedienfeld die „FrontMic" (Vorderes Mikrofon)-Registerkarte. Passen Sie die „Recording Volume" (Aufnahmelautstärke) an.

System Panel-Header

(9-pin PANEL1)

(siehe S.2 - No. 20)



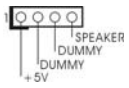
Dieser Header unterstützt mehrere Funktion der Systemvorderseite.

Deutsch

Schließen Sie die Ein-/Austaste, die Reset-Taste und die Systemstatusanzeige am Gehäuse an diesen Header an; befolgen Sie dabei die nachstehenden Hinweise zur Pinbelegung. Beachten Sie die positiven und negativen Pins, bevor Sie die Kabel anschließen.

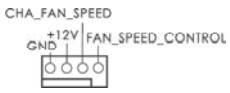
PWRBTN (Ein-/Ausschalter):
Zum Anschließen des Ein-/Ausschalters an der Frontblende des Gehäu ses. Sie können konfigurieren, wie das System mit Hilfe des Ein-/Ausschalters ausgeschaltet werden können soll.
RESET (Reset-Taste):
Zum Anschließen der Reset-Taste an der Frontblende des Gehäuses. Mit der Reset-Taste können Sie den Computer im Falle eines Absturzes neu starten.
PLED (Systembetriebs-LED):
Zum Anschließen der Betriebsstatusanzeige an der Frontblende des Gehäuses. Die LED leuchtet, wenn das System in Betrieb ist. Die LED blinkt, wenn sich das System im Ruhezustand S1/S3 befindet. Die LED schaltet sich aus, wenn sich das System in den Modi S4 befindet oder ausgeschaltet ist (S5).
HDLED (Festplattenaktivitäts-LED):
Zum Anschließen der Festplattenaktivitäts-LED an der Frontblende des Gehäuses. Die LED leuchtet, wenn die Festplatte Daten liest oder schreibt.

Das Design der Frontblende kann je nach Gehäuse variiere. Ein Frontblendenmodul besteht hauptsächlich aus einer Ein-/Austaste, einer Reset-Taste, einer Betriebs-LED, einer Festplattenaktivitäts-LED, Lautsprechern, etc. Stellen Sie beim Anschließen des Frontblendenmoduls Ihres Gehäuses an diesem Header sicher, dass die Kabel- und Pinbelegung korrekt übereinstimmen.

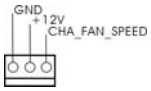
Gehäuselautsprecher-Header (4-pin SPEAKER1) (siehe S.2 - No. 21)		Schließen Sie den Gehäuselautsprecher an diesen Header an.
Betriebs-LED-Header (3-pin PLED1) (siehe S.2 - No. 19)		Bitte schließen Sie die Betriebs-LED des Gehäuses zur Anzeige des Systembetriebsstatus an diesem Header an. Die LED leuchtet, wenn das System in Betrieb ist. Die LED blinkt im S1/S3-Zustand. Im S4- oder S5-Zustand (ausgeschaltet) leuchtet die LED nicht.

Gehäuse und Strom lüfteranschlüsse

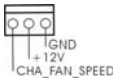
(4-pin CHA_FAN1)
(siehe S.2, No. 30)



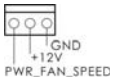
(3-pin CHA_FAN2)
(siehe S.2 - No. 29)



(3-pin CHA_FAN3)
(siehe S.2 - No. 44)



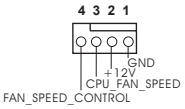
(3-pin PWR_FAN1)
(siehe S.2 - No. 3)



Verbinden Sie die Lüfterkabel mit den Lüfteranschlüssen, wobei der schwarze Draht an den Schutzleiterstift angeschlossenwird. CHA_FAN1- , CHA_FAN2- und CHA_FAN3- unterstützen Lüftersteuerung.

CPU-Lüfteranschluss

(4-pin CPU_FAN1)
(siehe S.2 - No. 4)



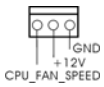
Verbinden Sie das CPU - Lüfterkabel mit diesem Anschluss und passen Sie den schwarzen Draht dem Erdungsstift an.

Obwohl dieses Motherboard einen vierpoligen CPU-Lüfteranschluss (Quiet Fan) bietet, können auch CPU-Lüfter mit dreipoligem Anschluss angeschlossen werden; auch ohne Geschwindigkeitsregulierung. Wenn Sie einen dreipoligen CPU-Lüfter an den CPU-Lüferanschluss dieses Motherboards anschließen möchten, verbinden Sie ihn bitte mit den Pins 1 – 3.

Pins 1–3 anschließen

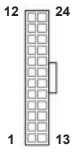
Lüfter mit dreipoligem Anschluss installieren

(3-pin CPU_FAN2)
(sieche S.2 - No. 5)



ATX-Netz-Header

(24-pin ATXPWR1)
(siehe S.2 - No. 8)



Verbinden Sie die ATX-Stromversorgung mit diesem Header.

Obwohl dieses Motherboard einen 24-pol. ATX-Stromanschluss bietet, kann es auch mit einem modifizierten traditionellen 20-pol. ATX-Netzteil verwendet werden. Um ein 20-pol. ATX-Netzteil zu verwenden, stecken Sie den Stecker mit Pin 1 und Pin 13 ein.

Installation eines 20-pol. ATX-Netzteils

Deutsch

ATX 12V Anschluss

(8-pin ATX12V1)

(siehe S.2 - No. 1)

Bitte schließen Sie an diesen Anschluss die ATX 12V Stromversorgung an.

Obwohl diese Hauptplatine 8-Pin ATX 12V Stromanschluss zur Verfügung stellt, kann sie noch arbeiten, wenn Sie einen traditionellen 4-Pin ATX 12V Energieversorgung adoptieren. Um die 4-Pin ATX Energieversorgung zu verwenden, stecken Sie bitte Ihre Energieversorgung zusammen mit dem Pin 1 und Pin 5 ein.

Installation der 4-Pin ATX 12V Energieversorgung

SLI/XFIRE-Stromanschluss

(4-pin SLI/XFIRE_PWR1)

(siehe S.2 - No. 43)

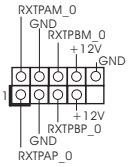
SLI/XFIRE_POWER1

Sie müssen diesen Anschluss nicht zwingend verwenden. Wenn allerdings zwei Grafikkarten gleichzeitig am Motherboard angeschlossen sind, verbinden Sie diesen Anschluss bitte mit einem Festplatten-Stromversorgungs-stecker.

IEEE-1394 Header

(9-pin FRONT_1394)

(siehe S.2 - No. 31)

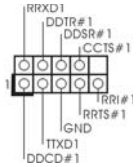


Außer einem vorgegebenem IEEE-1394 Port auf dem Ein-/ Ausgabe Paneel, gibt es einen IEEE-1394 Header (FRONT_1394) auf dieser Hauptplatine. Dieser IEEE-1394 Header kann einen IEEE-1394 Port unterstützen.

COM-Anschluss-Header

(9-pin COM1)

(siehe S.2 - No. 33)



Dieser COM-Anschluss- Header wird verwendet, um ein COM-Anschlussmodul zu unterstützen.

Deutsch

HDMI_SPDIF-Anschluss (2-pin HDMI_SPDIF1) (siehe S.2 - No. 34)		Der HDMI_SPDIF-Anschluss stellt einen SPDIF-Audioausgang für eine HDMI-VGA-Karte zur Verfügung und ermöglicht den Anschluss von HDMI-Digitalgeräten wie Fernsehgeräten, Projektoren, LCD-Geräten an das System. Bitte verbinden Sie den HDMI_SPDIF-Anschluss der HDMI-VGA-Karte mit diesem Anschluss.

1.5 Schnellschalter

Dieses Motherboard besitzt drei Schnellschalter: Netzschalter, Rücksetzschalter (Reset) und CMOS löschen-Schalter, mit denen Benutzer das System schnell ein-/ausschalten oder zurücksetzen oder die CMOS-Werte löschen können.

Netzschalter (PWRBTN) (siehe S.2 - No. 18)		Der Netzschalter ist ein Schnellschalter, mit dem Benutzer das System schnell ein-/ausschalten können.
Rücksetzschalter (Reset) (RSTBTN) (siehe S.2 - No. 17)		Der Rücksetzschalter (Reset) ist ein Schnellschalter, mit dem Benutzer das System schnell zurücksetzen können.
CMOS löschen-Schalter (CLRCBTN) (siehe S.3 - No. 17)		Der CMOS löschen-Schalter ist ein Schnellschalter, mit dem Benutzer die CMOS-Werte schnell löschen können.

2. BIOS-Information

Das Flash Memory dieses Motherboards speichert das Setup-Utility. Drücken Sie <F2> oder <Del> während des POST (Power-On-Self-Test) um ins Setup zu gelangen, ansonsten werden die Testroutinen weiter abgearbeitet. Wenn Sie ins Setup gelangen wollen, nachdem der POST durchgeführt wurde, müssen Sie das System über die Tastenkombination <Ctrl> + <Alt> + <Delete> oder den Reset-Knopf auf der Gehäusevorderseite, neu starten. Natürlich können Sie einen Neustart auch durchführen, indem Sie das System kurz ab- und danach wieder anschalten.
Das Setup-Programm ist für eine bequeme Bedienung entwickelt worden. Es ist ein menügesteuertes Programm, in dem Sie durch unterschiedliche Untermenüs scrollen und die vorab festgelegten Optionen auswählen können. Für detaillierte Informationen zum BIOS-Setup, siehe bitte das Benutzerhandbuch (PDF Datei) auf der Support CD.

3. Software Support CD information

Dieses Motherboard unterstützt eine Reiche von Microsoft® Windows® Betriebssystemen: 7 / 7 64-Bit / Vista™ / Vista™ 64-Bit / XP / XP 64-Bit. Die Ihrem Motherboard beigefügte Support-CD enthält hilfreiche Software, Treiber und Hilfsprogramme, mit denen Sie die Funktionen Ihres Motherboards verbessern können Legen Sie die Support-CD zunächst in Ihr CD-ROM-Laufwerk ein. Der Willkommensbildschirm mit den Installationsmenüs der CD wird automatisch aufgerufen, wenn Sie die “Autorun”-Funktion Ihres Systems aktiviert haben.
Erscheint der Wilkommensbildschirm nicht, so “doppelklicken” Sie bitte auf das File ASSETUP.EXE im BIN-Verzeichnis der Support-CD, um die Menüs aufzurufen.
Das Setup-Programm soll es Ihnen so leicht wie möglich machen. Es ist menügesteuert, d.h. Sie können in den verschiedenen Untermenüs Ihre Auswahl treffen und die Programme werden dann automatisch installiert.

1. Introduction

Merci pour votre achat d'une carte mère ASRock ***Z77 WS***, une carte mère très fiable produite selon les critères de qualité rigoureux de ASRock. Elle offre des performances excellentes et une conception robuste conformément à l'engagement d'ASRock sur la qualité et la fiabilité au long terme.
Ce Guide d'installation rapide présente la carte mère et constitue un guide d'installation pas à pas. Des informations plus détaillées concernant la carte mère pourront être trouvées dans le manuel l'utilisateur qui se trouve sur le CD d'assistance.

Les spécifications de la carte mère et le BIOS ayant pu être mis à jour, le contenu de ce manuel est sujet à des changements sans notification. Au cas où n'importe qu'elle modification intervenait sur ce manuel, la version mise à jour serait disponible sur le site web ASRock sans nouvel avis. Vous trouverez les listes de prise en charge des cartes VGA et CPU également sur le site Web ASRock.
Site web ASRock, http://www.asrock.com
Si vous avez besoin de support technique en relation avec cette carte mère, veuillez consulter notre site Web pour de plus amples informations particulières au modèle que vous utilisez.
www.asrock.com/support/index.asp

1.1 Contenu du paquet

Carte mère ASRock ***Z77 WS***
(Facteur de forme ATX: 12.0 pouces x 9.6 pouces, 30.5 cm x 24.4 cm)
Guide d'installation rapide ASRock ***Z77 WS***
CD de soutien ASRock ***Z77 WS***
Six câbles de données de série ATA (SATA) (en option)
Un câble d'alimentation de série ATA (SATA) HDD (en option)
Un I/O Panel Shield
Deux carte Pont_ASRock SLI
Un carte 3S_Pont_ASRock SLI
Un carte pont à trois voies SLI ASRoc

ASRock vous rappelle...
Pour bénéficier des meilleures performances sous Windows® 7 / 7 64 bits / Vista™ / Vista™ 64 bits, il est recommandé de paramétrer l'option BIOS dans Configuration de stockage en mode AHCI. Pour plus de détails sur l'installation BIOS, référez-vous au "Mode d'emploi" sur votre CD de support.

1.2 Spécifications

Format	- Facteur de forme ATX: 12.0 pouces x 9.6 pouces, 30.5 cm x 24.4 cm - Design de condensateur Premium Gold (condensateurs polymère conducteur de qualité supérieure 100% fabriqués au Japon)
CPU	- Prend en charge les processeurs Intel® Core™ i7 / i5 / i3 2ème et 3ème génération sur socket LGA1155 - Conception Digi Power - 8 + 4 Power Phase conception - Prend en charge la technologie Intel® Turbo Boost 2.0 - Prise en charge des unités centrales non verrouillées de série K
Chipsets	- Intel® Z77 - Prend en charge les technologies Intel® Rapid Start et Smart Connect
Mémoire	- Compatible avec la Technologie de Mémoire à Canal Double - 4 x slots DIMM DDR3 - Supporter DDR3 3000+(OC)/2400(OC)/2133(OC)/1866(OC) /1600/1333/1066 non-ECC, sans amortissement mémoire - Capacité maxi de mémoire système: 32GB - Prend en charge le profil de mémoire extrême Intel® (XMP) 1.3/1.2
Slot d'extension	- 5 x slots PCI Express 3.0 x16 (PCIE2 : mode x16 ou PCIE1/PCIE3/PCIE5/PCIE7 : mode x16/0/16/0 ou mode x8/8/8/8) * PCIE 3.0 n'est pris en charge qu'avec le processeur Intel® Ivy Bridge. Avec le processeur Intel® Sandy Bridge, seul PCIE 2.0 est pris en charge. - 1 x slot PCI Express 2.0 x16 (PCIE4 : mode x4) - 1 x slot PCI Express 2.0 x1 - Prend en charge AMD Quad CrossFireX™, 4-Way CrossFireX™, 3-Way CrossFireX™ et CrossFireX™ - Prend en charge NVIDIA® Quad SLI™, 4-Way SLI™, 3-Way SLI™ et SLI™
VGA sur carte	* Intel® HD Graphics avec visuels intégrés (Built-in Visuals) et les sorties VGA sont uniquement pris en charge par les processeurs à GPU intégré.

	- Supporte Intel® HD Graphics Built-in Visuals: Intel® Quick Sync Video 2.0, Intel® InTru™ 3D, Intel® Clear Video HD Technology, Intel® Insider™, Intel® HD Graphics 2500/4000 - Pixel Shader 5.0, DirectX 11 avec CPU Intel® Ivy Bridge, Pixel Shader 4.1, DirectX 10.1 avec CPU Intel® Sandy Bridge - Mémoire partagée max 1760MB - Prend en charge le HDMI 1.4a avec une résolution maximale jusqu'à 1920x1200 @ 60Hz - Prend en charge Lip Sync, Deep Color (12bpc), xvYCC et HBR (High Bit Rate Audio : Audio à haut débit binaire) avec HDMI (Moniteur compatible HDMI requis) - Prise en charge de la fonction HDCP avec port HDMI - Supporter 1080p Blu-ray(BD)/ lecteur de HD-DVD avec port HDMI
Audio	- 7,1 CH HD Audio avec protection de contenu (Realtek ALC898 Audio Codec) - Prise en charge de l'audio Premium Blu-ray
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - Support du Wake-On-LAN - Prend en charge la norme Energy Efficient Ethernet (Ethernet à efficacité énergétique) 802.3az - Prend en charge le protocole double LAN avec fonction pairage - Supporte PXE
Stockage	- 2 x connecteurs SATA3 6,0 Gb/s par Intel® Z77, prennent en charge les fonctions RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage et Intel Smart Response), NCQ, AHCI et « Hot Plug » (Branche ment à chaud) - 4 x connecteurs SATA3 6,0 Gb/s par ASMedia ASM1061, prennent en charge les fonctions NCQ, AHCI et « Hot Plug » (Branche ment à chaud) (le connecteur SATA3_A4 est partagé avec le port eSATA3) - 4 x connecteurs SATA2 3,0 Gb/s par Intel® Z77, prennent en charge les fonctions RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage et Intel Smart Response), NCQ, AHCI et « Hot Plug » (Branche ment à chaud)
Panneau arrière	I/O Panel - 1 x port clavier/souris PS/2 - 1 x port HDMI

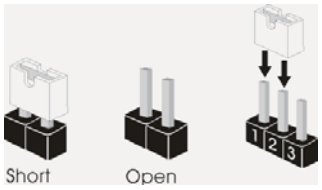
	- 1 x Port de sortie optique SPDIF - 2 x ports USB 2.0 par défaut - 1 x Connecteur eSATA3 - 8 x ports USB 3.0 par défaut - 2 x ports LAN RJ-45 avec LED (ACT/LED CLIGNOTANTE et LED VITESSE) - 1 x port IEEE 1394 - 1 x interrupteur d'effacement du CMOS avec LED - Prise HD Audio: Haut-parleur arrière / Central /Basses / Entrée Ligne / Haut-parleur frontal / Microphone
USB 3.0	- 4 x ports USB3.0 à l'arrière par Intel® Z77, prennent en charge USB 1.0/2.0/3.0 jusqu'à 5 Gb/s - 4 x ports USB3.0 à l'arrière par Etron EJ188, prennent en charge USB 1.0/2.0/3.0 jusqu'à 5 Gb/s - 2 x barrette USB3.0 en façade (prend en charge 4 ports USB 3.0) par Etron EJ188, prend en charge USB 1.0/2.0/3.0 jusqu'à 5 Gb/s
Connecteurs	- 1 x En-tête du module infrarouge - 1 x Barrette pour module à infrarouges grand public - 1 x En-tête de port COM - 1 x Connecteur HDMI_SPDIF - 1 x connecteur IEEE 1394 - 1 x Connecteur de LED d'alimentation - 2 x Connecteur pour ventilateur de CPU Ventilateur (1 x br. 4, 1 x br. 3) - 3 x Connecteur pour ventilateur de Châssis Ventilateur (1 x br. 4, 2 x br. 3) - 1 x Connecteur pour ventilateur de pouvoir Ventilateur (br. 3) - br. 24 connecteur d'alimentation ATX - br. 8 connecteur d'alimentation 12V ATX - Connecteur d'alimentation SLI/XFIRE - Connecteur audio panneau avant - 3 x En-tête USB 2.0 (prendre en charge 6 ports USB 2.0 supplémentaires) - 2 x En-tête USB 3.0 (prendre en charge 4 ports USB 3.0 supplémentaires) - 1 x Dr. Debug (LED de débogage à 7 segments) - 1 x interrupteur d'alimentation avec LED - 1 x interrupteur de réinitialisation avec LED - 1 x interrupteur d'effacement du CMOS avec LED
BIOS	- 64Mb AMI UEFI Legal BIOS avec support GUI

	- Support du “Plug and Play” - Compatible pour événements de réveil ACPI 1.1 - Gestion jumperless - Support SMBIOS 2.3.1 - CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA Tension Multi-ajustement
CD d’assistance	- Pilotes, utilitaires, logiciel anti-virus (version d’évaluation), CyberLink MediaEspresso 6.5 Trial, Suite multimédia ASRock MAGIX - OEM
Surveillance système	- Détection de la température de l’UC - Mesure de température de la carte mère - Tachéomètre ventilateur processeur/châssis/pouvoir ventilateur - Ventilateur silencieux pour unité centrale/châssis (permet le réglage automatique de la vitesse du ventilateur pour châssis, selon la température de l’unité centrale) - Commande de ventilateur CPU/Châssis à plusieurs vitesses - Monitoring de la tension: +12V, +5V, +3.3V, Vcore
OS	- Microsoft® Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit
Certifications	- FCC, CE, WHQL - Prêt pour ErP/EuP (alimentation Prêt pour ErP/EuP requise)

* Pour de plus amples informations sur les produits, s’il vous plaît visitez notre site web: http://www.asrock.com

1.3 Réglage des cavaliers

L'illustration explique le réglage des cavaliers. Quand un capuchon est placé sur les broches, le cavalier est « FERME ». Si aucun capuchon ne relie les broches,le cavalier est « OUVERT ». L'illustration montre un cavalier à 3 broches dont les broches 1 et 2 sont « FERMEES » quand le capuchon est placé sur ces 2 broches.



Le cavalier	Description
Effacer la CMOS (CLRCMOS1) (voir p.2 fig. 22)	1_2 Paramètres par défaut 2_3 Effacer la CMOS

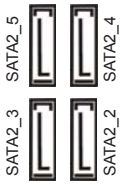
Remarque : CLRCMOS1 vous permet d'effacer les données du CMOS. Pour effacer et réinitialiser les paramètres du système à la configuration originale, veuillez éteindre l'ordinateur et débrancher le cordon d'alimentation de la prise de courant. Après 15 secondes, utilisez un couvercle de jumper pour court-circuiter les broches pin2 et pin3 de CLRCMOS1 pendant 5 secondes. Veuillez cependant ne pas effacer le CMOS immédiatement après avoir mis à jour le BIOS. Si vous avez besoin d'effacer le CMOS après avoir mis à jour le BIOS, vous devez allumer en premier le système, puis l'éteindre avant de continuer avec l'opération d'effacement du CMOS. Veuillez noter que le mot de passe, la date, l'heure, le profil par défaut de l'utilisateur, 1394 GUID et l'adresse MAC seront effacés seulement si la batterie du CMOS est enlevée.

Le commutateur Effacer CMOS présente la même fonction que le cavalier Effacer CMOS.

1.4 En-têtes et Connecteurs sur Carte

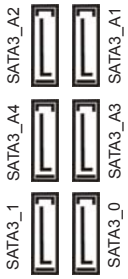
Les en-têtes et connecteurs sur carte NE SONT PAS des cavaliers. NE PAS placer les capuchons de cavalier sur ces en-têtes et connecteurs. Le fait de placer les capuchons de cavalier sur les en-têtes et connecteurs causera à la carte mère des dommages irréversibles!

Connecteurs Série ATA2
(SATA2_2_3: voir p.2 No. 15)
(SATA2_4_5: voir p.2 No. 16)



Ces quatre connecteurs Série ATA2 (SATA2) prennent en charge les câbles SATA pour les périphériques de stockage internes. L'interface SATA2 actuelle permet des taux transferts de données pouvant aller jusqu'à 3,0 Gb/s.

Connecteurs Série ATA3
(SATA3_A1_A2: voir p.2 No. 12)
(SATA3_A3_A4: voir p.2 No. 13)
(SATA3_0_1: voir p.2 No. 14)



Ces six connecteurs Série ATA3 (SATA3) prennent en charge les câbles SATA pour les périphériques de stockage internes. L'interface SATA3 actuelle permet des taux transferts de données pouvant aller jusqu'à 6,0 Gb/s. Si vous installez le disque dur sur le port eSATA3 sur le panneau E/S arrière, le connecteur SATA3_A4 interne ne fonctionne pas.

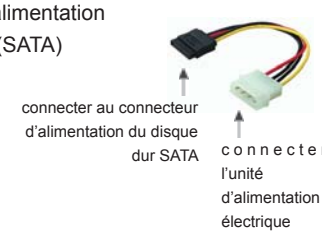
Câble de données Série ATA (SATA)
(en option)

Toute cote du cable de data SATA peut etre connecte au disque dur SATA / SATA2 / SATA3 ou au connecteur SATA2 / SATA3 sur la carte mere.

Français

Cordon d'alimentation Série ATA (SATA)

(en option)

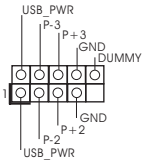


Veuillez connecter l'extrémité noire du cordon d'alimentation SATA sur le connecteur d'alimentation sur chaque unité. Connectez ensuite l'extrémité blanche du cordon d'alimentation SATA sur le connecteur d'alimentation de l'unité d'alimentation électrique.

En-tête USB 2.0

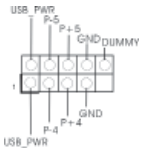
(USB2_3 br. 9)

(voir p.2 No. 25)



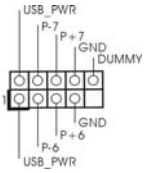
(USB4_5 br. 9)

(voir p.2 No. 26)



(USB6_7 br. 9)

(voir p.2 No. 27)

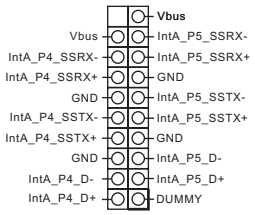


A côté des deux ports USB 2.0 par défaut sur le panneau E/S, il y a trois embases USB 2.0 sur cette carte mère. Chaque embase USB 2.0 peut prendre en charge 2 ports USB 2.0.

En-tête USB 3.0

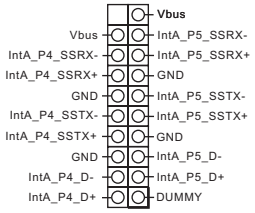
(USB3_9_10 br.19)

(voir p.2 No. 10)



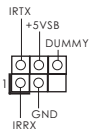
(USB3_11_12 br.19)

(voir p.2 No. 9)



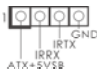
En plus des huit ports USB 3.0 par défaut sur le panneau E/S, il y a deux barrette USB 3.0 sur la carte mère. Chaque embase USB 3.0 peut prendre en charge 2 ports USB 3.0.

En-tête du module infrarouge
(IR1 br. 5)
(voir p.2 No. 32)



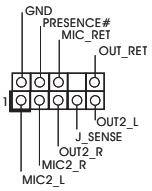
Cet en-tête supporte un module infrarouge optionnel de transfert et de réception sans fil.

Barrette pour module à infrarouges grand public
(CIR1 br.4)
(voir p.2 No. 28)



Cette barrette peut être utilisée pour connecter des récepteur

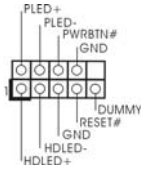
Connecteur audio panneau
(HD_AUDIO1 br. 9)
(voir p.2 No. 35)



C'est une interface pour un câble avant audio en façade qui permet le branchement et le contrôle commodes de périphériques audio.

1. L'audio à haute définition (HDA) prend en charge la détection de fiche, mais le fil de panneau sur le châssis doit prendre en charge le HDA pour fonctionner correctement. Veuillez suivre les instructions dans notre manuel et le manuel de châssis afin installer votre système.
2. Si vous utilisez le panneau audio AC'97, installez-le sur l'adaptateur audio du panneau avant conformément à la procédure ci-dessous:
   A. Connectez Mic_IN (MIC) à MIC2_L.
   B. Connectez Audio_R (RIN) à OUT2_R et Audio_L (LIN) à OUT2_L.
   C. Connectez Ground (GND) à Ground (GND).
   D. MIC_RET et OUT_RET sont réservés au panneau audio HD. Vous n'avez pas besoin de les connecter pour le panneau audio AC'97.
   E. Pour activer le micro avant.
   Pour les systèmes d'exploitation Windows® XP / XP 64 bits : Sélectionnez "Mixer". Sélectionnez "Recorder" (Enregistreur). Puis cliquez sur "FrontMic" (Micro avant).
   Pour les systèmes d'exploitation Windows® 7 / 7 64 bits / Vista™ / Vista™ 64 bits :
   Allez sur l'onglet "FrontMic" (Micro avant) sur le Panneau de contrôle Realtek. Ajustez "Recording Volume" (Volume d'enregistrement).

En-tête du panneau système
(PANEL1 br. 9)
(voir p.2 No. 20)



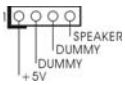
Cet en-tête permet d'utiliser plusieurs fonctions du panneau système frontal.

Français

Connectez l'interrupteur d'alimentation, l'interrupteur de réinitialisation et l'indicateur d'état du système du châssis sur cette barrette en respectant l'affectation des broches décrite ci-dessous. Faites attention aux broches positives et négatives avant de connecter les câbles.

PWRBTN (Interrupteur d'alimentation):
Connectez ici le connecteur d'alimentation sur le panneau avant du châssis. Vous pouvez configurer la façon de mettre votre système hors tension avec l'interrupteur d'alimentation.
RESET (Interrupteur de réinitialisation):
Connectez ici le connecteur de réinitialisation sur le panneau avant du châssis. Appuyez sur l'interrupteur de réinitialisation pour redémarrer l'ordinateur s'il se bloque ou s'il n'arrive pas à redémarrer normalement.
PLED (DEL alimentation système):
Connectez ici l'indicateur d'état de l'alimentation sur le panneau avant du châssis. Ce voyant DEL est allumé lorsque le système est en marche. Le voyant DEL clignote lorsque le système est en mode veille S1/S3. Le voyant DEL est éteint lorsque le système est en mode veille S4 ou lorsqu'il est éteint (S5).
HDLED (DEL activité du disque dur):
Connectez ici le voyant DEL d'activité du disque dur sur le panneau avant du châssis. Ce voyant DEL est allumé lorsque le disque dur est en train de lire ou d'écrire des données.

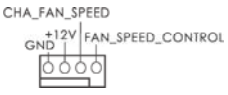
Le design du panneau avant peut varier en fonction du châssis. Un module de panneau avant consiste principalement en : interrupteur d'alimentation, interrupteur de réinitialisation, voyant DEL d'alimentation, voyant DEL d'activité du disque dur, haut-parleur, etc. Lorsque vous connectez le panneau avant de votre châssis sur cette barrette, vérifiez bien à faire correspondre les fils et les broches.

En-tête du haut-parleur de châssis (SPEAKER1 br. 4) (voir p.2 No. 21)		Veuillez connecter le haut-parleur de châssis sur cet en-tête.
LED di accensione (PLED1 br. 3) (voir p.2 Nr. 19)		Collegare il LED di accensione chassi per indicare lo stato di alimentazione del sistema. Il LED è acceso quando il sistema è in funzione. Il LED continua a lampeggiare in stato S1/S3. Il LED è spento in stato S4 o S5 (spegnimento).

Connecteur pour châssis et ventilateur

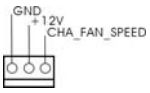
(CHA_FAN1 br. 4)

(voir p.2 No. 30)



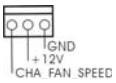
(CHA_FAN2 br. 3)

(voir p.2 No. 29)



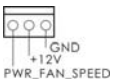
(CHA_FAN3 br. 3)

(voir p.2 No. 44)



(PWR_FAN1 br. 3)

(voir p.2 No. 3)

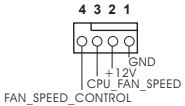


Branchez les câbles du ventilateur aux connecteurs pour ventilateur et faites correspondre le fil noir à la broche de terre. CHA_FAN1, CHA_FAN2 et CHA_FAN3 prennent en charge la fonction contrôle du ventilateur.

Connecteur du ventilateur de l'UC

(CPU_FAN1 br. 4)

(voir p.2 No. 4)



Veuillez connecter le câble de ventilateur d'UC sur ce connecteur et brancher le fil noir sur la broche de terre.

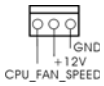
Bien que cette carte mère offre un support de (Ventilateur silencieux ventilateur de CPU à 4 broches , le ventilateur de CPU à 3 broches peut bien fonctionner même sans la fonction de commande de vitesse du ventilateur. Si vous prévoyez de connecter le ventilateur de CPU à 3 broches au connecteur du ventilateur de CPU sur cette carte mère, veuillez le connecter aux broches 1-3.

Installation de ventilateur à 3 broches

Broches 1-3 connectées

(CPU_FAN2 br. 3)

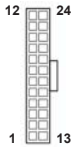
(voir p.2 No. 5)



En-tête d'alimentation ATX

(ATXPWR1 br. 24)

(voir p.2 No. 8)



Veuillez connecter l'unité d'alimentation ATX sur cet en-tête.

Bien que cette carte mère fournisse un connecteur de courant ATX 24 broches, elle peut encore fonctionner si vous adopter une alimentation traditionnelle ATX 20 broches. Pour utiliser une alimentation ATX 20 broches, branchez à l'alimentation électrique ainsi qu'aux broches 1 et 13.

20-Installation de l'alimentation électrique ATX

Français

Connecteur ATX 12V

(ATX12V1 br.8)

(voir p.2 No. 1)

Veuillez connecter une unité d'alimentation électrique ATX 12V sur ce connecteur.

Bien que cette carte mère possède 8 broches connecteur d'alimentation ATX 12V, il peut toujours travailler si vous adoptez une approche traditionnelle à 4 broches ATX 12V alimentation. Pour utiliser l'alimentation des 4 broches ATX, branchez votre alimentation avec la broche 1 et la broche 5.

4-Installation d'alimentation à 4 broches ATX 12V

Connecteur d'alimentation SLI/XFIRE

(SLI/XFIRE_POWER1 br. 4)

(voir p.2 No. 43)

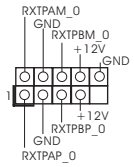
SLI/XFIRE_POWER1

Il n'est pas nécessaire d'utiliser ce connecteur, mais veuillez le brancher avec un connecteur d'alimentation pour disques durs quand deux cartes graphiques sont branchées sur cette carte mère en même temps.

Header de IEEE 1394

(FRONT_1394 br. 9)

(voir p.2 No. 31)

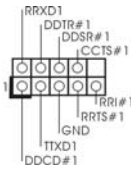


Sauf un port de default IEEE 1394 sur le panel I/O, il y a un header de IEEE1394 (FRONT_1394) sur cette carte mere. Le header de IEEE 1394 peut supporter un port de IEEE 1394.

En-tête de port COM

(COM1 br.9)

(voir p.2 No. 33)



Cette en-tête de port COM est utilisée pour prendre en charge un module de port COM.

Français

Connecteur HDMI_SPDIF (HDMI_SPDIF1 2-pin) (voir p.2 No. 34)		Connecteur HDMI_SPDIF, fournissant une sortie audio SPDIF vers la carte VGA HDMI, et permettant au système de se connecter au un téléviseur numérique HDMI /un projecteur / un périphérique LCD. Veuillez brancher le connecteur HDMI_SPDIF de la carte VGA HDMI sur ce connecteur.

1.5 Interrupteur rapides

Cette carte mère dispose de trois interrupteurs rapides : un interrupteur d'alimentation, un interrupteur de réinitialisation et un interrupteur d'effacement de CMOS, permettant aux utilisateurs de rapidement allumer/éteindre ou réinitialiser le système, ainsi que d'effacer les valeurs du CMOS.

Interrupteur d'alimentation (PWRBTN) (voir p.2 No. 18)		L'interrupteur d'alimentation est un interrupteur rapide, qui permet à l'utilisateur d'allumer/éteindre rapidement le système.
Interrupteur de réinitialisation (RSTBTN) (voir p.2 No. 17)		L'interrupteur de réinitialisation est un interrupteur rapide, qui permet à l'utilisateur de réinitialiser rapidement le système.
Interrupteur d'effacement de CMOS (CLRCBTN) (voir p.3 No. 17)		L'interrupteur d'effacement de CMOS est un interrupteur rapide qui permet à l'utilisateur d'effacer rapidement les valeurs du CMOS.

2. Informations sur le BIOS

La puce Flash Memory sur la carte mère stocke le Setup du BIOS. Lorsque vous démarrez l'ordinateur, veuillez presser <F2> ou <Del> pendant le POST (Power-On-Self-Test) pour entrer dans le BIOS; sinon, le POST continue ses tests de routine. Si vous désirez entrer dans le BIOS après le POST, veuillez redémarrer le système en pressant <Ctl> + <Alt> + <Suppr>, ou en pressant le bouton de reset sur le boîtier du système. Vous pouvez également redémarrer en éteignant le système et en le rallumant. L'utilitaire d'installation du BIOS est conçu pour être convivial. C'est un programme piloté par menu, qui vous permet de faire défiler par ses divers sous-menus et de choisir parmi les choix prédéterminés. Pour des informations détaillées sur le BIOS, veuillez consulter le Guide de l'utilisateur (fichier PDF) dans le CD technique.

3. Informations sur le CD de support

Cette carte mère supporte divers systèmes d'exploitation Microsoft® Windows®: 7 / 7 64 bits / Vista™ / Vista™ 64 bits / XP / XP 64 bits. Le CD technique livré avec cette carte mère contient les pilotes et les utilitaires nécessaires pour améliorer les fonctions de la carte mère. Pour utiliser le CD technique, insérez-le dans le lecteur de CD-ROM. Le Menu principal s'affiche automatiquement si "AUTORUN" est activé dans votre ordinateur. Si le Menu principal n'apparaît pas automatiquement, localisez dans le CD technique le fichier "ASSETUP.EXE" dans le dossier BIN et double-cliquez dessus pour afficher les menus.

1. Introduzione

Grazie per aver scelto una scheda madre ASRock ***Z77 WS***, una scheda madre affidabile prodotta secondo i severi criteri di qualità ASRock. Le prestazioni eccellenti e il design robusto si conformano all'impegno di ASRock nella ricerca della qualità e della resistenza.

Questa Guida Rapida all'Installazione contiene l'introduzione alla motherboard e la guida passo-passo all'installazione. Informazioni più dettagliate sulla motherboard si possono trovare nel manuale per l'utente presente nel CD di supporto.

Le specifiche della scheda madre e il software del BIOS possono essere aggiornati, pertanto il contenuto di questo manuale può subire variazioni senza preavviso. Nel caso in cui questo manuale sia modificato, la versione aggiornata sarà disponibile sul sito di ASRock senza altro avviso. Sul sito ASRock si possono anche trovare le più recenti schede VGA e gli elenchi di CPU supportate.
ASRock website http://www.asrock.com
Se si necessita dell'assistenza tecnica per questa scheda madre, visitare il nostro sito per informazioni specifiche sul modello che si sta usando.
www.asrock.com/support/index.asp

1.1 Contenuto della confezione

Scheda madre ASRock ***Z77 WS***
(ATX Form Factor: 12.0-in x 9.6-in, 30.5 cm x 24.4 cm)
Guida di installazione rapida ASRock ***Z77 WS***
CD di supporto ASRock ***Z77 WS***
Sei cavi dati Serial ATA (SATA) (opzionali)
Un cavi di alimentazione HDD Serial ATA (SATA) (opzionali)
Un I/O Shield
Due scheda ASRock SLI_Bridge
Un scheda ASRock SLI_Bridge_3S
Un scheda Bridge ASRock 3-Way SLI

ASRock vi ricorda...
Per ottenere migliori prestazioni in Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit, si consiglia di impostare l'opzione BIOS in Storage Configuration (Configurazione di archiviazione) sulla modalità AHCI. Per l'impostazione BIOS, fare riferimento a "User Manual" (Manuale dell'utente) nel CD di supporto per dettagli.

1.2 Specifiche

Piattaforma	- ATX Form Factor: 12.0-in x 9.6-in, 30.5 cm x 24.4 cm - Design Premium Gold Capacitor (condensatori a polimeri conduttivi di altissima qualità 100% made in Japan)
Processore	- Supporta Intel® Core™ i7 / i5 / i3 di 3a e 2a generazione in un pacchetto LGA1155 - Design Digi Power - Struttura di fase con alimentazione 8 + 4 - Supporto della tecnologia Intel® Turbo Boost 2.0 - Supporta CPU unlocked serie K
Chipset	- Intel® Z77 - Supporta tecnologia Intel® Rapid Start Technology e Smart Connect Technology
Memoria	- Supporto tecnologia Dual Channel Memory - 4 x slots DDR3 DIMM - Supporto DDR3 3000+(OC)/2400(OC)/2133(OC)/1866(OC)/1600/1333/1066 non-ECC, momoria senza buffer - Capacità massima della memoria di sistema: 32GB - Supporto di Intel® XMP (Extreme Memory Profile)1.3/1.2
Slot di espansione	- 5 x Alloggio PCI Express 3.0 x16 (PCIE2 : modalità x16 o PCIE1/PCIE3/PCIE5/PCIE7 : modalità x16/0/16/0 o modalità x8/8/8/8) * PCIE 3.0 è supportato soltanto con la CPU Intel® Ivy Bridge. Con la CPU Intel® Sandy Bridge, supporta solamente PCIE 2.0. - 1 x Alloggio PCI Express 2.0 x16 (PCIE4 : modalità x4) - 1 x Alloggio PCI Express 2.0 x1 - Supporto di AMD Quad CrossFireX™, 4-Way CrossFireX™, 3-Way CrossFireX™ e CrossFireX™ - Supporto di NVIDIA® Quad SLI™, 4-Way SLI™, 3-Way SLI™ e SLI™
VGA su scheda	* Le uscite Intel® HD Graphics Built-in Visuals e VGA possono essere supportate solo con processori dotati di GPU integrata. - Supporta Intel® HD Graphics Built-in Visuals: Intel® Quick Sync Video 2.0, Intel® InTru™ 3D, Intel® Clear Video HD Technology, Intel® Insider™, Intel® HD Graphics 2500/4000 - Pixel Shader 5.0, DirectX 11 con CPU Intel® Ivy Bridge, Pixel Shader 4.1, DirectX 10.1 con CPU Intel® Sandy Bridge - Memoria massima condivisa 1760MB

	- Supporta HDMI 1.4a con risoluzione massima fino a 1920x1200 @ 60Hz - Supporto delle funzioni Auto Lip Sync, Deep Color (12bpc), xvYCC e HBR (High Bit Rate Audio) con HDMI (è necessario un monitor compatibile HDMI) - Supporto della funzione HDCP con le porta HDMI - Supporto 1080p Blu-ray (BD) / HD-DVD riproduzione con le porta HDMI
Audio	- 7.1 CH HD Audio con protezioni contenuti (Realtek ALC898 Audio Codec) - Supporto audio Blu-ray Premium
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - Supporta Wake-On-LAN - Supporto di Energy Efficient Ethernet 802.3az - Supporto di Dual LAN con funzione Teaming - Supporta PXE
Storage	- 2 x Connettori SATA3 6,0Gb/s Z77 Intel®, supporto RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage e tecnologia Intel Smart Response) e delle funzioni NCQ, AHCI e “Hot Plug” - 4 x Connettori SATA3 6,0Gb/s ASM1061 ASMedia, supporto delle funzioni NCQ, AHCI e “Hot Plug” (il connettore SATA3_A4 è condiviso con la porta eSATA3) - 4 x Connettori SATA2 3,0Gb/s Z77 Intel®, supporto RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage e tecnologia Intel Smart Response) e delle funzioni NCQ, AHCI e “Hot Plug”
Pannello posteriore I/O	I/O Panel - 1 x porta PS/2 per tastiera/mouse - 1 x Porta HDMI - 1 x Porta ottica SPDIF Out - 2 x porte USB 2.0 già integrate - 1 x Connettore eSATA3 - 8 x porte USB 3.0 già integrate - 2 x porte LAN RJ-45 con LED (LED azione/collegamento e LED velocità) - 1 x porte IEEE 1394 - 1 x interruttore di pulizia CMOS con LED - Connettore HD Audio: cassa posteriore / cassa centrale / bassi / ingresso linea / cassa frontale / microfono

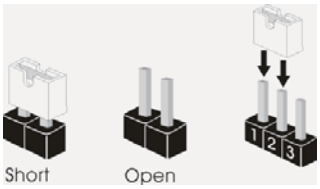
USB 3.0	- 4 x porte USB 3.0 posteriori amministrate dal controller Intel® Z77, supporto di USB 1.0/2.0/3.0 fino a 5Gb/s - 4 x porte USB 3.0 posteriori amministrate dal controller Etron EJ188, supporto di USB 1.0/2.0/3.0 fino a 5Gb/s - 2 x header USB 3.0 frontale (supporta 4 porte USB 3.0) amministrato dal controller Etron EJ188, supporto di USB 1.0/2.0/3.0 fino a 5Gb/s
Connettori	- 1 x Collettore modulo infrarossi - 1 x Connettore modulo infrarosso consumer - 1 x collettore porta COM - 1 x connettore HDMI_SPDIF - 1 x collettore IEEE 1394 - 1 x LED di accensione - 2 x Connettore CPU Alimentazione ventola (1 x 4-pin, 1 x 3-pin) - 3 x Connettore Chassis Alimentazione ventola (1 x 4-pin, 2 x 3-pin) - 1 x Connettore potenza Alimentazione ventola (3-pin) - 24-pin collettore alimentazione ATX - 8-pin connettore ATX 12V - Collettore alimentazione SLI/XFIRE - Connettore audio sul pannello frontale - 3 x Collettore USB 2.0 (supporta 6 porte USB 2.0) - 2 x Collettore USB 3.0 (supporta 4 porte USB 3.0) - 1 x Dr. Debug (LED debug con 7 segmenti) - 1 x interruttore di alimentazione con LED - 1 x interruttore di reset con LED - 1 x interruttore pulizia CMOS con LED
BIOS	- 64Mb AMI UEFI Legal BIOS con interfaccia di supporto - Supporta “Plug and Play” - Compatibile con ACPI 1.1 wake up events - Supporta jumperfree - Supporta SMBIOS 2.3.1 - Regolazione multi-voltaggio CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA
CD di supporto	- Driver, Utilità, Software AntiVirus (versione di prova), CyberLink MediaEspresso 6.5 Trial, Suite multimediale ASRock MAGIX - OEM
Monitoraggio Hardware	- Sensore per la temperatura del processore - Sensore temperatura scheda madre - Indicatore di velocità per la ventola del CPU/Chassis/potenza Alimentazione

	- Ventola CPU/Chassis silenziosa (permette la regolazione automatica della ventola dello chassis in base alla temperatura della CPU) - Ventola CPU/chassis con controllo di varie velocità - Voltaggio: +12V, +5V, +3.3V, Vcore
Compatibilità SO	- Microsoft® Windows® 7 / 7 64 bit / Vista™ / Vista™ 64 bit / XP / XP 64 bit
Certificazioni	- FCC, CE, WHQL - Predisposto ErP/EuP (è necessaria l'alimentazione predisposta per il sistema ErP/EuP)

* Per ulteriori informazioni, prego visitare il nostro sito internet: http://www.asrock.com

1.3 Setup dei Jumpers

L'illustrazione mostra come sono settati i jumper. Quando il ponticello è posizionato sui pin, il jumper è "CORTOCIRCUITATO". Se sui pin non ci sono ponticelli, il jumper è "APERTO". L'illustrazione mostra un jumper a 3 pin in cui il pin1 e il pin2 sono "CORTOCIRCUITATI" quando il ponticello è posizionato su questi pin.



Jumper	Settaggio del Jumper	
Resettare la CMOS (CLRCMOS1) (vedi p.2 Nr. 22)	Impostazione predefinita	Azzeramento CMOS

Nota: CLRCMOS1 permette si azzerare i dati nella CMOS. Per cancellare e ripristinare i parametri del sistema sulla configurazione iniziale, spegnere il computer e scollegare il cavo d'alimentazione dalla presa di corrente. Attendere 15 secondi, poi usare un cappuccio jumper per cortocircuitare il pin 2 ed il pin 3 su CLRCMOS1 per 5 secondi. Tuttavia, si consiglia di non cancellare la CMOS subito dopo avere aggiornato il BIOS. Se si deve azzerare la CMOS quando si è completato l'aggiornamento del BIOS, è necessario per prima cosa avviare il sistema e poi spegnerlo prima di eseguire l'azzeramento della CMOS. Notare che password, data, ore, profilo utente predefinito, 1394 GUID e indirizzo MAC saranno cancellati solo se è rimossa la batteria della CMOS.

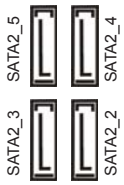
L'interruttore Clear CMOS (Cancella CMOS) ha la stessa funzione del jumper Clear CMOS.

Italiano

1.4 Collettori e Connettori su Scheda

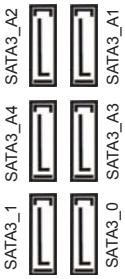
I collettori ed i connettori su scheda NON sono dei jumper. NON installare cappucci per jumper su questi collettori e connettori. L'installazione di cappucci per jumper su questi collettori e connettori provocherà danni permanenti alla scheda madre!

Connettori Serial ATA2
(SATA2_2_3: vedi p.2 Nr. 15)
(SATA2_4_5: vedi p.2 Nr. 16)



Questi quattro connettori Serial ATA2 (SATA2) supportano cavi dati SATA per dispositivi di immagazzinamento interni. L'interfaccia SATA2 attuale permette velocità di trasferimento dati fino a 3.0 Gb/s.

Serial ATA3 Connectors
(SATA3_A1_A2: vedi p.2 Nr. 12)
(SATA3_A3_A4: vedi p.2 Nr. 13)
(SATA3_0_1: vedi p.2 Nr. 14)



Questi sei connettori Serial ATA3 (SATA3) supportano cavi dati SATA per dispositivi di immagazzinamento interni. L'interfaccia SATA3 attuale permette velocità di trasferimento dati fino a 6.0 Gb/s. Se si installa l'HD sulla porta eSATA3 con la connessione I/O sul retro, il SATA3_A4 interno non funziona.

Cavi dati Serial ATA (SATA)
(Opzionale)

Una o altra estremità del cavo di dati SATA può essere collegata al disco rigido SATA / SATA2 / SATA3 o al connettore di SATA2 / SATA3 su questa cartolina base.

Cavo d'alimentazione Serial ATA (SATA)
(Opzionale)

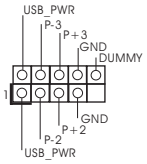
Collegare l'estremità nera de cavo di alimentazione SATA al connettore di alimentazione del drive. Poi connettete l'estremità bianca del cavo di alimentazio ne SATA al connettore power dell'alimentatore.

Italiano

Collettore USB 2.0

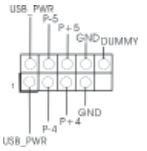
(9-pin USB2_3)

(vedi p.2 Nr. 25)



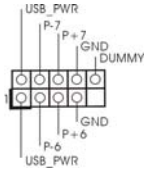
(9-pin USB4_5)

(vedi p.2 Nr. 26)



(9-pin USB6_7)

(vedi p.2 Nr. 27)

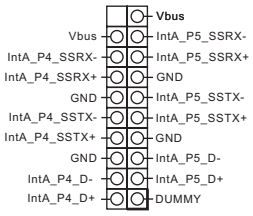


Oltre alle due porte USB 2.0 predefinite nel pannello I/O, la scheda madre dispone di tre intestazioni USB 2.0. Ciascuna intestazione USB 2.0 supporta due porte USB 2.0.

Collettore USB 3.0

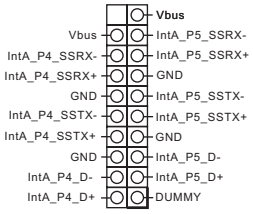
(19-pin USB3_9_10)

(vedi p.2 Nr. 10)



(19-pin USB3_11_12)

(vedi p.2 Nr. 9)

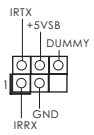


Oltre alle otto porte USB 3.0 predefinite nel pannello I/O, la scheda madre dispone di due intestazioni USB 3.0. Ciascuna intestazione USB 3.0 supporta due porte USB 3.0.

Collettore modulo infrarossi

(5-pin IR1)

(vedi p.2 Nr. 32)

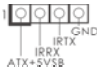


Questo collettore supporta moduli ad infrarossi optional per la trasmissione e la ricezione senza fili.

Connettore modulo infrarosso consumer

(4-pin CIR1)

(vedi p.2 Nr. 28)



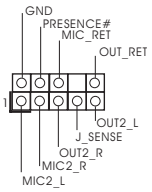
Questo connettore può essere utilizzato per collegare ricevitore remoto.

Italiano

Connettore audio sul pannello frontale

(9-pin HD_AUDIO1)

(vedi p.2 Nr. 35)



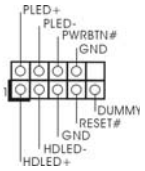
È un'interfaccia per il cavo del pannello audio. Che consente connessione facile e controllo dei dispositivi audio.

1. La caratteristica HDA (High Definition Audio) supporta il rilevamento dei connettori, però il pannello dei cavi sul telaio deve supportare la funzione HDA (High Definition Audio) per far sì che questa operi in modo corretto. Attenersi alle istruzioni del nostro manuale e del manuale del telaio per installare il sistema.
2. Se si utilizza un pannello audio AC'97, installarlo nell'intestazione audio del pannello anteriore, come indicato di seguito:
   A. Collegare Mic_IN (MIC) a MIC2_L.
   B. Collegare Audio_R (RIN) a OUT2_R e Audio_L (LIN) ad OUT2_L.
   C. Collegare Ground (GND) a Ground (GND).
   D. MIC_RET e OUT_RET sono solo per il pannello audio HD. Non è necessario collegarli per il pannello audio AC'97.
   E. Per attivare il microfono frontale.
   Sistema operativo Windows® XP / XP 64-bit:
   Selezionare "Mixer". Selezionare "Recorder" (Registratore). Poi, fare clic su "FrontMic" (Microfono frontale).
   Sistema operativo Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit:
   Andare alla scheda "FrontMic" (Microfono frontale) del pannello di controllo Realtek. Regolare la voce "Recording Volume" (Volume registrazione).

Collettore pannello di sistema

(9-pin PANEL1)

(vedi p.2 Nr. 20)



Questo collettore accomoda diverse funzioni di sistema pannello frontale.

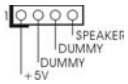
Collegare l'interruttore d'alimentazione, l'interruttore di ripristino, l'indicatore di stato del sistema del pannello frontale del telaio a questo header in base all'assegnazione dei pin definita di seguito. Determinare i pin positivi e negativi prima di collegare i cavi.

PWRBTN (interruttore d'alimentazione):
Va collegato all'interruttore d'alimentazione del pannello frontale del telaio. Usando l'interruttore d'alimentazione si può configurare il modo in cui si spegne il sistema.
RESET (interruttore di ripristino):
Va collegato all'interruttore di ripristino del pannello frontale del telaio. Premere l'interruttore di ripristino per riavviare il sistema se il computer si blocca e non riesce ad eseguire un normale riavvio.

PLED (LED alimentazione del sistema):
Va collegato all'indicatore di stato d'alimentazione del pannello frontale del telaio. Il LED è acceso quando il sistema è operativo. Il LED continua a lampeggiare quando il sistema è in stato di standby S1/S3. Il LED è spento quando il sistema è in stato di sospensione /ibernazione S4 oppure spento (S5).
HDLED (LED attività disco rigido):
Va collegato al LED attività disco rigido del pannello frontale del telaio. Il LED è acceso quando disco rigido legge e scrive i dati.

Il design del pannello frontale può variare in base ai telai. Il modulo di un pannello frontale può consistere di: interruttore d'alimentazione, interruttore di ripristino, LED d'alimentazione, LED attività disco rigido, casse, eccetera. Quando si collega il modulo del pannello frontale a questo header, assicurarsi che l'assegnazione dei fili e dei pin sia fatta corrispondere in modo appropriato.

Collettore casse telaio
(4-pin SPEAKER1)
(vedi p.2 Nr. 21)

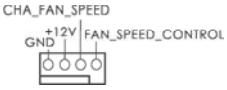


Collegare le casse del telaio a questo collettore.

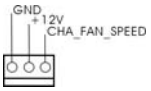
LED di accensione
(3-pin PLED1)
(vedi p.2 Nr. 19)

Collegare il LED di accensione chassi per indicare lo stato di alimentazione del sistema. Il LED è acceso quando il sistema è in funzione. Il LED continua a lampeggiare in stato S1/S3. Il LED è spento in stato S4 o S5 (spegnimento).

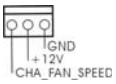
Collettori Chassis ed alimentazione ventola
(4-pin CHA_FAN1)
(vedi p.2 Nr. 30)



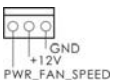
(3-pin CHA_FAN2)
(vedi p.2 Nr. 29)



(3-pin CHA_FAN3)
(vedi p.2 Nr. 44)



(3-pin PWR_FAN1)
(vedi p.2 Nr. 3)

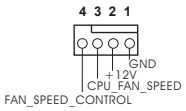


Collegare i cavi della ventola ai corrispondenti connettori facendo combaciare il cavo nero col pin di terra. CHA_FAN1, CHA_FAN2 e CHA_FAN3 supportano la funzione Fan Control.

Connettore ventolina CPU

(4-pin CPU_FAN1)

(vedi p.2 Nr. 4)



Collegare il cavo della ventolina CPU a questo connettore e far combaciare il filo nero al pin terra.

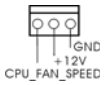
Sebbene la presente scheda madre disponga di un supporto per ventola CPU a 4 piedini (ventola silenziosa), la ventola CPU a 3 piedini è in grado di funzionare anche senza la funzione di controllo della velocità della ventola. Se si intende collegare la ventola CPU a 3 piedini al connettore della ventola CPU su questa scheda madre, collegarla ai piedini 1-3.

Piedini 1-3 collegati

Installazione della ventola a 3 piedini

(3-pin CPU_FAN2)

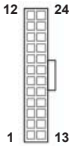
(vedi p.2 Nr. 5)



Connettore alimentazione ATX

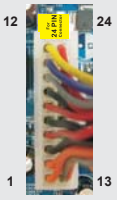
(24-pin ATXPWR1)

(vedi p.2 Nr. 8)



Collegare la sorgente d'alimentazione ATX a questo connettore.

Con questa scheda madre, c'è in dotazione un connettore elettrico ATX a 24 pin, ma può funzionare lo stesso se si adotta un alimentatore ATX a 20 pin. Per usare l'alimentatore ATX a 20 pin, collegare l'alimentatore con il Pin 1 e il Pin 13.



Installazione dell'alimentatore ATX a 20 pin

Connettore ATX 12 V

(8-pin ATX12V1)

(vedi p.2 Nr. 1)

Collegare un alimentatore ATX 12 V a questo connettore.

Sebbene questa schedamadre fornisca un connettore elettrico 8-pin ATX 12V, l'unita' puo' ancora essere funzionante se viene utilizzata una fornitura elettrica tradizionale a 4-pin ATX 12V. Per usare tale fornitura elettrica 4-pin ATX 12V, prego collegare la presa elettrica al Pin 1 e Pin 5.

Installazione elettrica 4-Pin ATX 12V

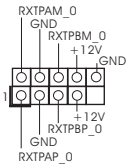
Italiano

Connettore alimentazione SLI/XFIRE
(4-pin SLI/XFIRE_POWER1)
(vedi p.2 Nr. 43)

SLI/XFIRE_POWER1

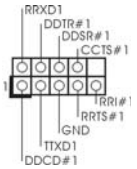
Non è necessario usare questo connettore, però deve essere collegatoad un connettore d'alimentazione disco rigido quando sulla scheda madre sono installate contemporaneamente due schede video.

Intestazione IEEE 1394
(9-pin FRONT_1394)
(vedi p.2 Nr. 31)



Accanto alla porta di default IEEE 1394 sul pannello I/O, e' presente un'intestazione IEEE 1394 (FRONT_1394) sulla scheda madre. Questa intestazione IEEE 1394 puo' supportare una porta IEEE 1394.

Collettore porta COM
(9-pin COM1)
(vedi p.2 Nr. 33)



Questo collettore porta COM è utilizzato per supportare il modulo porta COM.

Header HDMI_SPDIF
(2-pin HDMI_SPDIF1)
(vedi p.2 Nr. 34)

Header HDMI_SPDIF, con uscita audio SPDIF su scheda HDMI VGA, consente al sistema di collegare dispositivi per TV digitale HDMI/proiettori/ LCD . Collegare il connettore HDMI_SPDIF della scheda VGA HDMI a questo header.

1.5 Interruttori rapidi

Questa scheda madre ha tre interruttori rapidi: Interruttore di alimentazione, interruttore di reset e interruttore pulizia CMOS, che consentono agli utenti di accendere / spegnere rapidamente o cancellare i valori CMOS.

Interruttore (PWRBTN) (vedi p.2 Nr. 18)		L'interruttore di alimentazione è un interruttore rapido che consente agli utenti di accendere/spegnere rapidamente il sistema.
Interruttore di reset (RSTBTN) (vedi p.2 Nr. 17)		L'interruttore di reset è un interruttore rapido che consente agli utenti di resettare rapidamente il sistema.
Interruttore pulizia CMOS (CLRCBTN) (vedi p.3 Nr. 17)		L'interruttore di pulizia CMOS è un interruttore rapido che consente agli utenti di cancellare velocemente i valori CMOS.

2. Informazioni sul BIOS

La Flash Memory sulla scheda madre contiene le Setup Utility. Quando si avvia il computer, premi <F2> o <Del> durante il Power-On-Self-Test (POST) della Setup utility del BIOS; altrimenti, POST continua con i suoi test di routine. Per entrare il BIOS Setup dopo il POST, riavvia il sistema premendo <Ctl> + <Alt> + <Delete>, o premi il tasto di reset sullo chassis del sistema. Per informazioni più dettagliate circa il Setup del BIOS, fare riferimento al Manuale dell'Utente (PDF file) contenuto nel cd di supporto.

3. Software di supporto e informazioni su CD

Questa scheda madre supporta vari sistemi operativi Microsoft® Windows®: 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit. Il CD di supporto a corredo della scheda madre contiene i driver e utilità necessari a potenziare le caratteristiche della scheda.

Inserire il CD di supporto nel lettore CD-ROM. Se la funzione "AUTORUN" è attivata nel computer, apparirà automaticamente il Menù principale. Se il Menù principale non appare automaticamente, posizionarsi sul file "ASSETUP.EXE" nel CESTINO del CD di supporto e cliccare due volte per visualizzare i menù.

1. Introducción

Gracias por su compra de ASRock ***Z77 WS*** placa madre, una placa de confianza producida bajo el control de calidad estricto y persistente. La placa madre provee realización excelente con un diseño robusto conforme al compromiso de calidad y resistencia de ASRock.

Esta Guía rápida de instalación contiene una introducción a la placa base y una guía de instalación paso a paso. Puede encontrar una información más detallada sobre la placa base en el manual de usuario incluido en el CD de soporte.

Porque las especificaciones de la placa madre y el software de BIOS podrían ser actualizados, el contenido de este manual puede ser cambiado sin aviso. En caso de cualquier modificación de este manual, la versión actualizada estará disponible en el website de ASRock sin previo aviso. También encontrará las listas de las últimas tarjetas VGA y CPU soportadas en la página web de ASRock.

Website de ASRock http://www.asrock.com

Si necesita asistencia técnica en relación con esta placa base, visite nuestra página web con el número de modelo específico de su placa.

www.asrock.com/support/index.asp

1.1 Contenido de la caja

Placa base ASRock ***Z77 WS***

(Factor forma ATX: 30,5 cm x 24,4 cm, 12,0" x 9,6")

Guía de instalación rápida de ASRock ***Z77 WS***

CD de soporte de ASRock ***Z77 WS***

Seis cables de datos Serial ATA (SATA) (Opcional)

Una cables de alimentación HDD Serial ATA (SATA) (Opcional)

Una protección I/O

Dos tarjeta ASRock SLI_Bridge

Una tarjeta ASRock SLI_Bridge_3S

Una tarjeta SLI Bridge de 3 direcciones de ASRock

ASRock le recuerda...

Para mejorar el rendimiento en Windows® 7 / 7 64 bits / Vista™ / Vista™ 64 bits, es recomendable establecer la opción del BIOS de la configuración de almacenamiento en el modo AHCI. Para obtener detalles sobre la configuración del BIOS, consulte el "Manual del usuario" que se encuentra en nuestro CD de soporte.

1.2 Especificación

Plataforma	- Factor forma ATX: 30,5 cm x 24,4 cm, 12,0” x 9,6” - Diseño de condensadores de oro de calidad superior (condensadores de polímero conductor de alta calidad de fabricación 100% japonesa)
Procesador	- Admite procesadores Intel® Core™ i7 / i5 / i3 de la 3ª y 2ª generación en el paquete LGA1155 - Diseño de alimentación digital - Diseño de fases de potencia 8 + 4 - Admite la tecnología Intel® Turbo Boost 2.0 Technology - Admite procesador desbloqueado de la serie K
Chipset	- Intel® Z77 - Admite las tecnologías Intel® Rapid Start y Smart Connect
Memoria	- Soporte de Tecnología de Memoria de Doble Canal - 4 x DDR3 DIMM slots - Apoya DDR3 3000+(OC)/2400(OC)/2133(OC)/1866(OC)/ 1600/1333/1066 non-ECC, memoria de un-buffered - Máxima capacidad de la memoria del sistema: 32GB - Compatible con Intel® Extreme Memory Profile (XMP)1.3/1.2
Ranuras de Expansión	- 5 x ranuras PCI Express 3.0 x16 (PCIE2: modo x16 o PCIE1/ PCIE3/PCIE5/PCIE7: modo x16/0/16/0 o modo x8/8/8/8) * PCIE 3.0 solamente se admite con una CPU Intel® Ivy Bridge. Con una CPU Intel® Sandy Bridge, solamente admite PCIE 2.0. - 1 x ranura PCI Express 2.0 x16 (PCIE4: modo x4) - 1 x ranura PCI Express 2.0 x1 - Compatible con AMD Quad CrossFireX™, 4-Way CrossFireX™, 3-Way CrossFireX™ y CrossFireX™ - Compatible con NVIDIA® Quad SLI™, 4-Way SLI™, 3-Way SLI™ y SLI™
VGA OnBoard	* Los efectos visuales incorporados con gráficos de alta definición Intel® y las salidas VGA sólo se soportan con procesadores con GPU integrada. - Admite Intel® HD Graphics Built-in Visuals: Intel® Quick Sync Video 2.0, Intel® InTru™ 3D, Intel® Clear Video HD Technology, Intel® Insider™, Intel® HD Graphics 2500/4000 - Pixel Shader 5.0, DirectX 11 con CPU Intel® Ivy Bridge, Pixel Shader 4.1, DirectX 10.1 con CPU Intel® Sandy Bridge - 1760MB de Memoria máxima compartida

	- Admite HDMI 1.4a con una resolución máxima de 1920x1200 a 60 Hz - Admite Sincronización automática entre audio y vídeo, Deep Color (12 bpc), xvYCC y HBR (audio de alta tasa de bits) con HDMI (se necesita un monitor compatible con HDMI) - Admite la función HDCP con puerto HDMI - Apoya la reproducción de Blu-rayo de 1080p (BD) / HD-DVD con puerto HDMI
Audio	- 7.1 CH HD Audio con Protección de Contenido (Realtek ALC898 Audio Codec) - Compatible con audio Blu-ray de alta calidad
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - Soporta Wake-On-LAN - Compatible con Ethernet 802.3az de bajo consumo energético - Admite LAN dual con la función de trabajo en equipo - Compatible con PXE
Almacenamiento	- 2 x conectores SATA3 de 6,0 Gb/s con chip Intel® Z77 con funciones RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage y tecnología Intel Smart Response), NCQ, AHCI y de “Hot Plug” (conexión en caliente) - 4 x conectores SATA3 de 6,0 Gb/s con chip ASMedia ASM1061 con funciones NCQ, AHCI y de “Hot Plug” (conexión en caliente) (los puertos SATA3_A4 y eSATA3 son compartidos) - 4 x conectores SATA2 de 3,0 Gb/s con chip Intel® Z77 con funciones RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage y tecnología Intel Smart Response), NCQ, AHCI y de “Hot Plug” (conexión en caliente)
Entrada/Salida de Panel Trasero	I/O Panel - 1 x puerto de teclado/ratón PS/2 - 1 x puerto HDMI - 1 x puerto de salida óptica SPDIF - 2 x puertos USB 2.0 predeterminados - 1 x Conector eSATA3 - 8 x puertos USB 3.0 predeterminados - 2 x puertos LAN RJ-45 con LED (LED de ACCIÓN/ENLACE y LED de VELOCIDAD) - 1 x puerto IEEE 1394 - 1 x conmutador de borrado de memoria CMOS con indicador LED

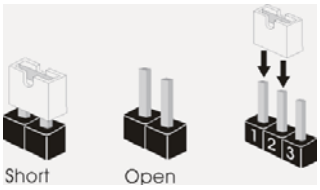
	- Conexión de audio: Altavoz trasero / Central / Bajos / Entrada de línea / Altavoz frontal / Micrófono
USB 3.0	- 4 x puertos USB 3.0 traseros de Intel® Z77, compatible con USB 1.0/2.0/3.0 de hasta 5 GB/s - 4 x puertos USB 3.0 traseros de Etron EJ188 compatible con USB 1.0/2.0/3.0 de hasta 5 GB/s - 2 x cabecera USB 3.0 delantera (compatible con 4 puertos USB 3.0) de Etron EJ188, compatible con USB 1.0/2.0/3.0 de hasta 5 GB/s
Conectores	- 1 x Cabezal de Módulo Infrarrojos - 1 x Base de conexiones del módulo de infrarrojos para el consumidor - 1x En-tête de port COM - 1 x cabecera HDMI_SPDIF - 1 x cabecera IEEE 1394 - 1 x cabecera de indicador LED de encendido - 2 x Conector de ventilador de CPU (1 x 4-pin, 1 x 3-pin) - 3 x Conector de ventilador de chasis (1 x 4-pin, 2 x 3-pin) - 1 x Conector de ventilador de alimentación (3-pin) - 24-pin cabezal de alimentación ATX - 8-pin conector de ATX 12V power - Cabezal de alimentación SLI/XFIRE - Conector de audio de panel frontal - 3 x Cabezal USB 2.0 (admite 6 puertos USB 2.0 adicionales) - 2 x Cabezal USB 3.0 (admite 4 puertos USB 3.0 adicionales) - 1 x Dr. Debug (indicador LED de avería de 7 segmentos) - 1 x conmutador de encendido con indicador LED - 1 x conmutador de reinicio con indicador LED - 1 x conmutador de borrado de memoria CMOS con indicador LED
BIOS	- 64Mb AMI BIOS legal UEFI AMI compatible con GUI - Soporta “Plug and Play” - ACPI 1.1 compliance wake up events - Soporta “jumper free” - Soporta SMBIOS 2.3.1 - Múltiple ajuste de CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA Voltage
CD de soport	- Controladores, utilidades, software de antivirus (versión de prueba), Prueba de CyberLink MediaEspresso 6.5, Conjunto multimedia ASRock MAGIX - OEM

Monitor Hardware	- Sensibilidad a la temperatura del procesador - Sensibilidad a la temperatura de la placa madre - Taquímetros de los ventiladores del procesador y del CPU / chasis / alimentación - Ventilador silencioso del procesador y el chasis (ajuste automático de la velocidad del ventilador del chasis en función de la temperatura del procesador) - Control de ajuste de la velocidad del ventilador de la CPU / chasis - Monitor de Voltaje: +12V, +5V, +3.3V, Vcore
OS	- En conformidad con Microsoft® Windows® 7 / 7 64 bits / Vista™ / Vista™ 64 bits / XP / XP 64 bits
Certificaciones	- FCC, CE, WHQL - Cumple con la directiva ErP/EuP (se requiere una fuente de alimentación que cumpla con la directiva ErP/EuP)

* Para más información sobre los productos, por favor visite nuestro sitio web: http://www.asrock.com

1.3 Setup de Jumpers

La ilustración muestra como los jumpers son configurados. Cuando haya un jumper-cap sobre los pins, se dice gue el jumper está “Short”. No habiendo jumper cap sobre los pins, el jumper está “Open”. La ilustración muesta un jumper de 3 pins cuyo pin 1 y pin 2 están “Short”.



Jumper	Setting	
Limpiar CMOS (CLRCMOS1, jumper de 3 pins) (ver p.2, N. 22)	1_2 Valor predeterminado	2_3 Restablecimiento de la CMOS

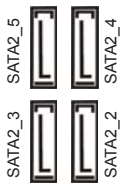
Nota: CLRCMOS1 permite borrar los datos de la memoria CMOS. Para borrar los parámetros del sistema y restablecer la configuración predeterminada de los mismos, apague el equipo y desenchufe el cable de alimentación de la toma de corriente eléctrica. Deje que transcurran 15 segundos y, después, utilice un puente para cortocircuitar los contactos 2 y 3 de CLRCMOS1 durante 5 segundos. No borre la memoria CMOS justamente después de actualizar el BIOS. Si necesita borrar la memoria CMOS justamente después de actualizar el BIOS, debe iniciar primero el sistema y, a continuación, cerrarlo antes de llevar a cabo el borrado de dicha memoria. Tenga en cuenta que la contraseña, la fecha, la hora, el perfil predeterminado del usuario, el GUID 1394 y la dirección MAC solamente se borrará si la batería CMOS se quita.

El conmutador Borrar CMOS tiene la misma función que el puente Borrar CMOS.

1.4 Cabezales y Conectores en Placas

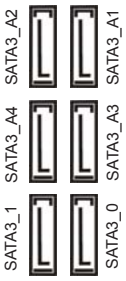
Los conectores y cabezales en placa NO son puentes. NO coloque las cubiertas de los puentes sobre estos cabezales y conectores. El colocar cubiertas de puentes sobre los conectores y cabezales provocará un daño permanente en la placa base.

Conexiones de serie ATA2
(SATA2_2_3: vea p.2, N. 15)
(SATA2_4_5: vea p.2, N. 16)



Estas cuatro conexiones de serie ATA2 (SATA2) admiten cables SATA para dispositivos de almacenamiento internos. La interfaz SATA2 actual permite una velocidad de transferencia de 3.0 Gb/s.

Conexiones de serie ATA3
(SATA3_A1_A2: vea p.2, N. 12)
(SATA3_A3_A4: vea p.2, N. 13)
(SATA3_0_1: vea p.2, N. 14)



Estas seis conexiones de serie ATA3 (SATA3) admiten cables SATA para dispositivos de almacenamiento internos. La interfaz SATA2 / SATA3 actual permite una velocidad de transferencia de 6.0 Gb/s. Si instala la unidad de disco duro en el puerto eSATA3 situado en la E/S posterior, el conector SATA3_A4 interno no funciona rá.

Cable de datos de serie ATA (SATA)
(Opcional)

Cualquier extremo del cable de los datos de SATA puede ser conectado con el disco duro de SATA / SATA2 / SATA3 o el conectador de SATA2 / SATA3 en esta placa base.

Cable de alimentación de serie ATA (SATA)
(Opcional)

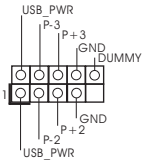
Conecte el extremo negro del cable de SATA al conector de energía de la unidad. A continuación, conecte el extremo blanco del cable de alimentación SATA a la conexión de alimentación de la fuente de alimentación.

Español

Cabezal USB 2.0

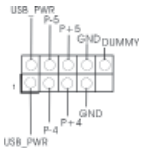
(9-pin USB2_3)

(vea p.2, N. 25)



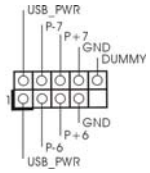
(9-pin USB4_5)

(vea p.2, N. 26)



(9-pin USB6_7)

(vea p.2, N. 27)

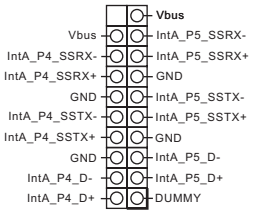


Además de dos puertos USB 2.0 predeterminados en el panel de E/S, hay tres bases de conexiones USB 2.0 en esta placa base. Cada una de estas bases de conexiones admite dos puertos USB 2.0.

Cabezal USB 3.0

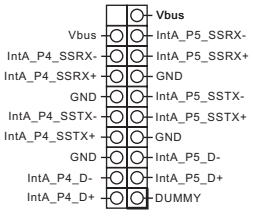
(19-pin USB3_9_10)

(vea p.2, N. 10)



(19-pin USB3_11_12)

(vea p.2, N. 9)

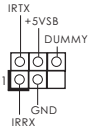


Además de ocho puertos USB 3.0 predeterminados situados en el panel E/S, hay dos bases de conexiones USB 3.0 en esta placa base. Cada una de estas bases de conexiones admite dos puertos USB 3.0.

Cabezal de Módulo Infrarrojos

(5-pin IR1)

(vea p.2, N. 32)

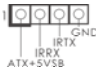


Este cabezal soporta un módulo infrarrojos de transmisión y recepción wireless opcional.

Base de conexiones del módulo de infrarrojos para el consumidor

(4-pin CIR1)

(vea p.2, N. 28)

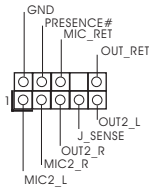


Esta base de conexiones se puede utilizar para conectar receptor remoto.

Conector de audio de panel frontal

(9-pin HD_AUDIO1)

(vea p.2, N. 35)



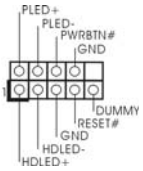
Este es una interface para cable de audio de panel frontal que permite conexión y control conveniente de apparatos de Audio.

1. El Audio de Alta Definición soporta la detección de conector, pero el cable de panel en el chasis debe soportar HDA para operar correctamente. Por favor, siga las instrucciones en nuestro manual y en el manual de chasis para instalar su sistema.
2. Si utiliza el panel de sonido AC'97, instálelo en la cabecera de sonido del panel frontal de la siguiente manera:
   A. Conecte Mic_IN (MIC) a MIC2_L.
   B. Conecte Audio_R (RIN) a OUT2_R y Audio_L (LIN) en OUT2_L.
   C. Conecte Ground (GND) a Ground (GND).
   D. MIC_RET y OUT_RET son sólo para el panel de sonido HD. No necesitará conectarlos al panel de sonido AC'97.
   E. Activación del micrófono frontal.
   En sistemas operativos Windows® XP / XP 64-bit:
   Seleccione "Mixer" (Mezclador). Seleccione "Recorder" (Grabadora). A continuación, haga clic en "FrontMic" (Micrófono frontal).
   En sistemas operativos Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit:
   Acceda a la ficha "FrontMic" (Micrófono frontal) del panel de control Realtek. Ajuste la posición del control deslizante "Recording Volume" (Volumen de grabación).

Cabezal de panel de sistema

(9-pin PANEL1)

(vea p.2, N. 20)



Este cabezar acomoda varias dunciones de panel frontal de sistema.

Conecte el interruptor de alimentación, el interruptor de restablecimiento y el indicador de estado del sistema situados en el chasis con esta cabecera en función de las siguientes asignaciones de contacto. Preste atención a los contactos positivos y negativos antes de conectar los cables.

PWRBTN (interruptor de alimentación):
Conecte el interruptor de encendido situado en el panel frontal del chasis. Puede configurar la forma de apagar su sistema mediante el interruptor de alimentación.
RESTABLECER (interruptor de restablecimiento):
Conecte el interruptor de restablecimiento situado en el panel frontal del

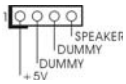
chasis. Pulse el interruptor de restablecimiento para restablecer el equipo si se bloquea y no se reinicia con normalidad.

PLED (LED de alimentación del sistema):
Conecte el indicador de estado de alimentación situado en el panel frontal del chasis. El LED se enciende cuando el sistema esté en funcionamiento. El LED parpadea cuando el sistema se encuentre en estado de suspensión S1/S3. El LED se apaga cuando el sistema se encuentre en estado de suspensión S4 o se apaga (S5).

HDLED (LED de actividad del disco duro):
Conecte el LED de actividad de disco duro situado en el panel frontal del chasis. El LED se enciende cuando el disco duro esté leyendo o escribiendo datos.

Es posible que el diseño del panel frontal varíe en función del chasis. Un módulo del panel frontal consiste principalmente de interruptor de alimentación, interruptor de restablecimiento, LED de alimentación, LED de actividad del disco duro, altavoz, etc. Al conectar el módulo del panel frontal del chasis a esta cabecera, asegúrese de que las asignaciones de cables y las asignaciones de contactos coincidan correctamente.

Cabezal del altavoz del chasis
(4-pin SPEAKER1)
(vea p.2, N. 21)



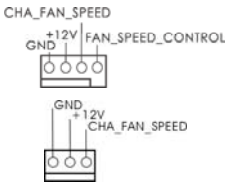
Conecte el altavoz del chasis a su cabezal.

Cabecera de indicador LED de encendido
(3-pin PLED1)
(vea p.2, N. 19)

Conecte el indicador LED de encendido del chasis a esta cabecera para conocer el estado de encendido del sistema. El indicador LED se encenderá si el sistema se encuentra en funcionamiento. El indicador LED parpadeará en el estado S1/S3. El indicador LED se apagará en los estados S4 o S5 (apagado).

Conectores de ventilador de chasis / alimentación
(4-pin CHA_FAN1)
(vea p.2, N. 30)

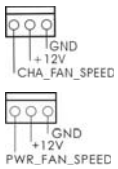
(3-pin CHA_FAN2)
(vea p.2, N. 29)



Por favor, conecte los cables del ventilador a los conectores de ventilador, haciendo coincidir el cable negro con la patilla de masa. CHA_FAN1, CHA_FAN2 y CHA_FAN3 admiten control de ventilador.

(3-pin CHA_FAN3)
(vea p.2, N. 44)

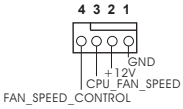
(3-pin PWR_FAN1)
(vea p.2, N. 3)



Conector del ventilador de la CPU

(4-pin CPU_FAN1)

(vea p.2, N. 4)



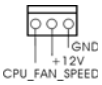
Conecte el cable del ventilador de la CPU a este conector y haga coincidir el cable negro con el conector de tierra.

Aunque esta placa base proporciona compatibilidad para un ventilador (silencioso) de procesador de 4 contactos, el ventilador de procesador de 3 contactos seguirá funcionando correctamente incluso sin la función de control de velocidad de ventilador. Si pretende enchufar el ventilador de procesador de 3 contactos en el conector del ventilador de procesador de esta placa base, conéctelo al contacto 1-3.

Contacto 1-3 conectado

Instalación del ventilador de 3 contactos

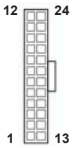
(3-pin CPU_FAN2)
(vea p.2, N. 5)



Cabezal de alimentación ATX

(24-pin ATXPWR1)

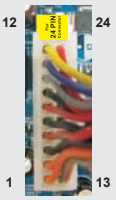
(vea p.2, N. 8)



Conecte la fuente de alimentación ATX a su cabezal.

A pesar de que esta placa base incluye in conector de alimentación ATX de 24 pins, ésta puede funcionar incluso si utiliza una fuente de alimentación ATX de 20 pins tradicional. Para usar una fuente de alimentación ATX de 20 pins, por favor, conecte su fuente de alimentación usando los Pins 1 y 13.

Instalación de una Fuente de Alimentación ATX de 20 Pins



Cabezal de alimentación ATX 12V

(8-pin ATX12V1)

(vea p.2, N. 1)

Conecte la fuente de alimentación ATX 12V a su cabezal.

Español

Aunque esta placa base proporciona un conector de energía de 8-pin ATX 12V, puede todavía trabajar si usted adopta un fuente tradicional de energía de 4-pin ATX 12V. Para usar el fuente de energía de 4-pin ATX 12V, por favor conecte su fuente de energía junto con Pin 1 y Pin 5.

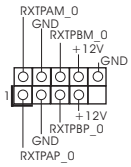
Instalación de Fuente de Energía de 4-Pin ATX 12V

Conector de alimentaciónSLI/XFIRE
(4-pin SLI/XFIRE_POWER1)
(vea p.2, N. 43)

SLI/XFIRE_POWER1

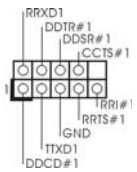
No es necesario utilizar este conector. Conéctelo al conector de alimentación del disco duro cuando se conecten dos tarjetas gráficas a esta placa base al mismo tiempo.

Jefe de IEEE 1394
(9-pin FRONT_1394)
(ver p.2, N. 31)



Además de un puerto de IEEE 1394 del defecto en el panel de I/O, hay un jefe de IEEE 1394 (FRONT_1394) en esta placa base. Este jefe de IEEE 1394 puede apoyar un puerto de IEEE 1394.

Cabezal del puerto COM
(9-pin COM1)
(vea p.2, N. 33)



Este cabezal del puerto COM se utiliza para admitir un módulo de puerto COM.

Cabecera HDMI_SPDIF
(HDMI_SPDIF1 de 2 pin)
(vea p.2, N. 34)

Cabecera HDMI_SPDIF. Ofrece una salida SPDIF la tarjeta VGA HDMI, permite al sistema conectarse a dispositivos de TV Digital HDMI / proyectores / Dispositivos LCD. Conecte el conector HDMI_SPDIF de la tarjeta VGA HDMI a esta cabecera.

Español

1.5 Conmutadores rápidos

Esta placa base dispone de tres conmutadores rápidos: conmutador de encendido, conmutador de reinicio y conmutador de borrado de memoria CMOS. Dichos conmutadores permiten al usuario encender / apagar o reiniciar el sistema, o bien borrar el contenido de la memoria CMOS.

Conmutador de encendido (PWRBTN) (vea p.2, N. 18)		El conmutador de reinicio es un conmutador rápido que permite al usuario reiniciar rápidamente el sistema.
Conmutador de reinicio (RSTBTN) (vea p.2, N. 17)		El conmutador de borrado de memoria CMOS es un conmutador rápido que permite al usuario borrar rápidamente el contenido de la memoria CMOS.
Conmutador de borrado de memoria CMOS (CLRCBTN) (vea p.3, N. 17)		El conmutador de encendido es un conmutador rápido que permite al usuario encender / apagar rápidamente el sistema.

2. BIOS Información

El Flash Memory de la placa madre deposita SETUP Utility. Durante el Power-Up (POST) apriete <F2> o <Del> para entrar en la BIOS. Sí usted no oprime ninguna tecla, el POST continúa con sus rutinas de prueba. Si usted desea entrar en la BIOS después del POST, por favor reinicie el sistema apretando <Ctl> + <Alt> + <Borrar>, o apretando el botón Reset en el panel del ordenador. Para información detallada sobre como configurar la BIOS, por favor refiérase al Manual del Usuario (archivo PDF) contenido en el CD.

3. Información de Software Support CD

Esta placa-base soporta diversos tipos de sistema operativo Windows®: 7 / 7 64 bits / Vista™ / Vista™ 64 bits / XP / XP 64 bits. El CD de instalación que acompaña la placa-base trae todos los drivers y programas utilitarios para instalar y configurar la placa-base. Para iniciar la instalación, ponga el CD en el lector de CD y se desplegará el Menú Principal automáticamente si «AUTORUN» está habilitado en su computadora.

Si el Menú Principal no aparece automáticamente, localice y doble-pulse en el archivo “ASSETUP.EXE” para iniciar la instalación.

1. Введение

Благодарим вас за покупку материнской платы ASRock ***Z77 WS*** надежной материнской платы, изготовленной в соответствии с постоянно предъявляемыми ASRock жесткими требованиями к качеству. Она обеспечивает превосходную производительность и отличается отличной конструкцией, которые отражают приверженность ASRock качеству и долговечности.

Данное руководство по быстрой установке включает вводную информацию о материнской плате и пошаговые инструкции по ее установке. Более подробные сведения о плате можно найти в руководстве пользователя на компакт-диске поддержки.

Спецификации материнской платы и программное обеспечение BIOS иногда изменяются, поэтому содержание этого руководства может обновляться без уведомления. В случае любых модификаций руководства его новая версия будет размещена на веб-сайте ASRock без специального уведомления. Кроме того, самые свежие списки поддерживаемых модулей памяти и процессоров можно найти на сайте ASRock.

Адрес веб-сайта ASRock http://www.asrock.com

При необходимости технической поддержки по вопросам данной материнской платы посетите наш веб-сайт для получения информации об используемой модели.

www.asrock.com/support/index.asp

1.1 Комплектность

Материнская плата ASRock ***Z77 WS***
(форм-фактор ATX: 12,0 x 9,6 дюйма / 30,5 x 24,4 см)
Руководство по быстрой установке ASRock ***Z77 WS***
Компакт-диск поддержки ASRock ***Z77 WS***
6 x кабель данных Serial ATA (SATA) (дополнительно)
1 x кабель питания для жесткого диска Serial ATA (SATA) (дополнительно)
1 x I/O Щит Группы ввода / вывода
2 x карта ASRock SLI_Bridge
1 x карта ASRock SLI_Bridge_3S
1 x Карта ASRock 3-Way SLI Bridge

ASRock напоминает...

Для обеспечения максимальной производительности ОС Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit рекомендуется в BIOS выбрать для параметра Storage Configuration (Конфигурация запоминающего устройства) режим AHCI. Подробные сведения о настройке BIOS см. в руководстве пользователя на прилагаемом компакт-диске.

1.2 Спецификации

Платформа	- форм-фактор ATX: 12,0 x 9,6 дюйма / 30,5 x 24,4 см - Дизайн конденсатора Premium Gold (100% японские высококачественные конденсаторы на основе проводящих полимеров)
Процессор	- Поддержка процессора Intel® Core™ i7 / i5 / i3 3-го и 2-го поколения с помощью разъема для процессоров LGA 1155 - Дизайн системы питания DigiPower - 8 + 4 проектирование фаз питания - Поддержка технологии Intel® Turbo Boost 2.0 - Поддержка разблокированного ЦП серии K
Набор микросхем	- Intel® Z77 - Поддержка технологии Intel® Rapid Start Technology и Smart Connect Technology
Память	- Поддержка технологии Dual Channel DDR3 Memory Technology - 4 x гнезда DDR3 DIMM - Поддержите DDR3 3000+(OC)/2400(OC)/2133(OC)/1866(OC)/1600/1333/1066 не- ECC, безбуферная память - Максимальный объем системной памяти: 32 ГБ - поддержка профиля Intel® Extreme Memory Profile (XMP)1.3/1.2
Гнезда расширения	- 5 x слота PCI Express 3.0 x16 (PCIE2: режим x16 или PCIE1/PCIE3/PCIE5/PCIE7: режим x16/0/16/0 или режим x8/8/8/8) * PCIE 3.0 поставляется только в комплекте с ЦП Intel® Ivy Bridge. В комплекте с ЦП Intel® Sandy Bridge поставляется только модель PCIE 2.0. - 1 x слота PCI Express 2.0 x16 (PCIE4: режим x4) - 1 x слота PCI Express 2.0 x1 - поддержка AMD Quad CrossFireX™, 4-Way CrossFireX™, 3-Way CrossFireX™ и CrossFireX™ - поддержка NVIDIA® Quad SLI™, 4-Way SLI™, 3-Way SLI™ и SLI™
Графика	* Встроенный видеоадаптер Intel® HD Graphics и выходы VGA поддерживаются только с процессорами, оснащенными интегрированным графическим процессором. - Поддержка функций встроенных видеоадаптеров Intel® HD: Intel® Quick Sync Video 2.0, Intel® InTru™ 3D, технологии Intel® Clear Video HD, Intel® Insider™, Intel® HD Graphics 2500/4000 - Pixel Shader 5.0, DirectX 11 с процессором Intel® Ivy Bridge, Pixel Shader 4.1, DirectX 10.1 с процессором Intel® Sandy Bridge - Макс. объем разделяемой памяти 1760Мб - Поддержка HDMI 1.4a с максимальным разрешением до 1920x1200 @ 60 Гц - Поддержка Auto Lip Sync, Deep Color (12 бит на цветовой канал), xvYCC и HBR (High Bit Rate Audio) через HDMI (необходим монитор с разъемом HDMI) - Поддержка функции HDCP через разъемы HDMI

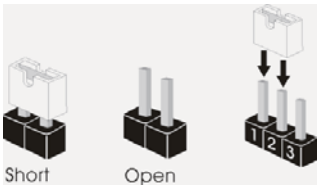
	- Подержат Blu-луч 1080p (КОММУТАЦИОННАЯ ДОСКА) / воспроизведение HD-DVD через разъемы HDMI
Аудиосистема	- 7.1 CH HD Аудио HD с Довольной Защитой (Кодер-декодер Аудио Realtek ALC898) - Поддержка Premium Blu-ray audio
ЛВС	- PCIE x 1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - поддержка Wake-On-LAN - Поддержка энергосберегающего интерфейса Ethernet 802.3az - Поддержка технологии Dual LAN с функцией объединения - Поддержка PXE
накопителей	- 2 x порта SATA3 со скоростью передачи данных 6,0 Гбит/с от контроллера Intel® Z77, с аппаратной поддержкой функций RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage и технологии Intel Smart Response), NCQ, AHCI и «горячего подключения» - 4 x порта SATA3 со скоростью передачи данных 6,0 Гбит/с от контроллера ASMedia ASM1061, с аппаратной поддержкой функций NCQ, AHCI и «горячего подключения» (порт SATA3_A4 объединен с портом eSATA3) - 4 x порта SATA2 со скоростью передачи данных 3,0 Гбит/с от контроллера Intel® Z77, с аппаратной поддержкой функций RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage и технологии Intel Smart Response), NCQ, AHCI и «горячего подключения»
Разъемы ввода-вывода на задней панели	I/O Panel - 1 x порт клавиатуры/мыши PS/2 - 1 x HDMI порт - 1 x порт Optical SPDIF Out - 2 x порта USB 2.0 на задней панели в стандартной конфигурации - 1 x eSATA3 порт - 8 x порта USB 3.0 на задней панели в стандартной конфигурации - 2 x Разъем RJ-45 LAN с светодиодным индикатором (индикатор ACT/LINK и индикатор SPEED) - 1 x порт IEEE 1394 - 1 x кнопка Clear CMOS со светодиодом - Соединитель звуковой подсистемы: тыльная колонка / центральная / субвуфер / линейный вход / передняя колонка / микрофон
USB 3.0	- 4 x задних порта USB 3.0 на контроллере Intel® Z77 с поддержкой интерфейсов USB 1.0/2.0/3.0 и скорости передачи данных до 5 Гбит/с - 4 x задних порта USB 3.0 на контроллере Etron EJ188 с поддержкой интерфейсов USB 1.0/2.0/3.0 и скорости передачи данных до 5 Гбит/с - 2 x передний разъем USB 3.0 (поддерживает 4 порта USB 3.0) на контроллере Etron EJ188 с поддержкой интерфейсов USB 1.0/2.0/3.0 и скорости передачи данных до 5 Гбит/с

Колодки и плате	- 1 x Колодка инфракрасного модуля - 1 x Датчик пользовательского инфракрасного модуля - 1 x Колодка COM - 1 x Колодка HDMI_SPDIF - 1 x Колодка IEEE 1394 - 1 x разъем Power LED - 2 x соединитель: CPU FAN (1 x 4-контактный, 1 x 3-контактный) - 3 x соединитель: Chassis FAN (1 x 4-контактный, 2 x 3-контактный) - 1 x соединитель: Power FAN (3-контактный) - 24-контактный Колодка питания ATX - 8-контактный Разъем ATX 12 B - Разъем питания SLI/XFIRE - Аудиоразъем передней панели - 2 x Колодка USB 2.0 (одна колодка для поддержки 4) дополнительных портов USB 2.0 - 1 x Колодка USB 3.0 (одна колодка для поддержки 2 дополнительных портов USB 3.0) - 1 x Dr. Debug (7-сегментный ЖК-дисплей) - 1 x кнопка Power Switch со светодиодом - 1 x кнопка Reset Switch со светодиодом - 1 x кнопка Clear CMOS со светодиодом
BIOS	- 64Mb AMI UEFI Legal BIOS с поддержкой графическоro интерфейса поль зователя - поддержка “Plug and Play” - ACPI 1.1, включение по событиям - поддержка режима настройки без перемычек - поддержка SMBIOS 2.3.1 - Регулировка напряжений CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA
Компактдиск поддержки	- Драйверы, служебные программы, антивирусное программное обеспечение (пробная версия), Пробная версия программы CyberLink MediaEspresso 6.5, ASRock MAGIX Multimedia Suite - поставщик
Контроль оборудо-вания	- Датчики температуры процессора - Датчики температуры корпуса - Тахометры вентиляторов CPU/Chassis/Power FAN - Бесшумный вентилятор ЦП/системного блока (возможность авто матической настройки скорости вентилятора системного блока в соответствии с температурой центрального процессора) - Мультиконтроль скорости вентилятора ЦП/Шасси - Контроль напряжения: +12V, +5V, +3.3V, Vcore
Операцион	- Совместимость с Microsoft® Windows® 7 / 7 64-bit / Vista™ / Поддержка 64-разрядной версии Vista™ / XP / XP 64-bit
ные системы Сертификаты	- FCC, CE, WHQL - Совместимость с ErP/EuP Ready (требуется блок питания совместимый с ErP/EuP)

* Для детальной информации продукта, пожалуйста посетите наш вебсайт: http://www.asrock.com

1.3 Установка перемычек

Конфигурация перемычек иллюстрируется на рисунке. Когда перемычка надета на контакты, они называются “замкнутыми” (short). Если на контактах перемычки нет, то они называются “разомкнутыми” (open). На иллюстрации показана 3-контактная перемычка, у которой контакты 1 и 2 замкнуты.



Перемычка	Установка	Описание
Очистка CMOS (CLRCMOS1, 3-контактная перемычка) (см. стр. 2, п. 22)	1_2 Стандартные; 2_3 Очистка CMOS	

Примечание. Контактная колодка CLRCMOS1 позволяет очистить данные CMOS. Для очистки данных и восстановления заводских системных параметров сначала выключите компьютер и отсоедините сетевую вилку кабеля питания от электророзетки. Выждите не менее 15 секунд и колпачковой перемычкой на 5 секунд перемкните штырьки 2 и 3 контактной колодки CLRCMOS1. Однако не производите очистку CMOS непосредственно после обновления BIOS. Если необходимо очистить CMOS сразу же после окончания обновления BIOS, то, перед очисткой CMOS, необходимо сначала выполнить загрузку системы, а затем завершить ее работу. Примите во внимание, что пароль, дата, время, профиль пользователя по умолчанию, идентификатор 1394 GUID и MAC-адрес будут очищены только тогда, когда будет извлечена из своего гнезда батарейка CMOS.

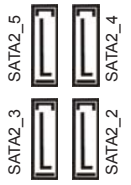
Переключатель Clear CMOS работает так же, как перемычка Clear CMOS.

Русский

1.4 Колодки и разъемы на плате

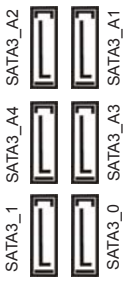
Имеющиеся на плате колодки и разъемы НЕ ЯВЛЯЮТСЯ контактами для перемычек. НЕ УСТАНАВЛИВАЙТЕ перемычки на эти колодки и разъемы – это приведет к необратимому повреждению материнской платы!

Разъемы Serial ATA2
(SATA2_2_3, см. стр. 2, п. 15)
(SATA2_4_5, см. стр. 2, п. 16)



четыре соединителя Serial ATA2 предназначаются для подключения внутренних устройств хранения с использованием интерфейсных кабелей SATA2. В настоящее время интерфейс SATA допускает скорость передачи данных до \ 3,0 Гбит/с. При установке жесткого диска в порт eSATA2 задней системы ввода/вывода, внутренний порт SATA2_3 не функционирует.

Разъемы Serial ATA3
(SATA3_A1_A2, см. стр. 2, п. 12)
(SATA3_A3_A4, см. стр. 2, п. 13)
(SATA3_0_1, см. стр. 2, п. 14)



шесть соединителя Serial ATA3 предназначаются для подключения внутренних устройств хранения с использованием нтерфейсных кабелей SATA3. В настоящее время интерфейс SATA допускает скорость передачи данных до \ 6,0 Гбит/с. При установке жесткого диска в порт eSATA3 задней системы ввода/вывода, внутренний порт SATA3_A4 не функционирует.

Информационный кабель Serial ATA (SATA)
(дополнительно)

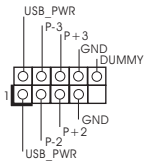
Информационный кабель интерфейса SATA / SATA2 / SATA3 не является направленным. Любой из его соединителей может быть подключен либо к жесткому диску интерфейса SATA2 / SATA3 либо к материнской плате.

Русский

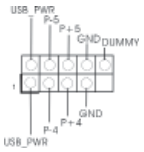
Кабель питания
Serial ATA (SATA)
(дополнительно)

Присоедините кабель питания стандарта SATA с помощью соединителей на его черном конце с ответными соединителями питания на каждом из жестких дисков. Затем соедините белый конец кабеля питания стандарта.

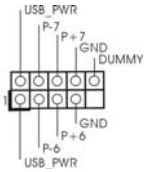
Колодка USB 2.0
(9-контактный USB2_3)
(см. стр. 2, п. 25)



(9-контактный USB4_5)
(см. стр. 2, п. 26)

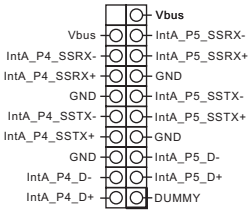


(9-контактный USB6_7)
(см. стр. 2, п. 27)

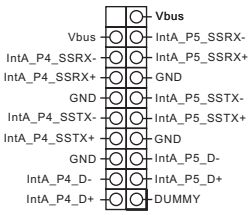


Помимо два стандартных портов USB 2.0 на панели ввода-вывода, на данной материнской плате предусмотрено три разъема USB 2.0. Каждый разъем USB 2.0 поддерживает два порта USB 2.0.

Колодка USB 3.0
(19-контактный USB3_9_10)
(см. стр. 2, п. 10)



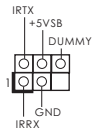
(19-контактный USB3_11_12)
(см. стр. 2, п. 9)



Помимо восемь стандартных портов USB 3.0 на панели ввода-вывода, на данной материнской плате предусмотрен два разъем USB 3.0. Каждый разъем USB 3.0 поддерживает два порта USB 3.0.

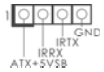
Русский

Колодка инфракрасного модуля
(5-контактный IR1)
(см. стр. 2, п. 32)



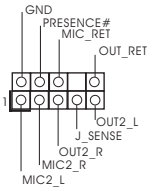
Данная колодка позволяет подключить дополнительный модуль беспроводного инфракрасного приемопередатчика.

Датчик пользовательского инфракрасного модуля
(4-контактный CIR1)
(см. стр. 2, п. 28)



Датчик можно использовать для подключения дистанционный приемник.

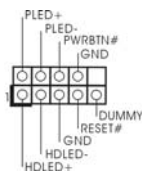
Аудиоразъем передней панели
(9-контактный HD_AUDIO1)
(см. стр. 2, п. 35)



Этот интерфейс предназначен для присоединения аудиокабеля передней панели, обеспечивающего удобное подключение аудиоустройств и управление ими.

1. Система High Definition Audio поддерживает функцию автоматического обнаружения разъемов (Jack Sensing), однако для ее правильной работы кабель панели в корпусе должен поддерживать HDA. При сборке системы следуйте инструкциям, приведенным в нашем руководстве и руководстве пользователя для корпуса.
2. Если вы используете аудиопанель AC'97, подключите ее к колодке аудиоинтерфейса передней панели следующим образом:
   A. Подключите выводы Mic_IN (MIC) к контактам MIC2_L.
   B. Подключите выводы Audio_R (RIN) к контактам OUT2_R, а выводы Audio_L (LIN) к контактам OUT2_L.
   C. Подключите выводы Ground (GND) к контактам Ground (GND).
   D. Контакты MIC_RET и OUT_RET предназначены только для аудиопанели HD. При использовании аудиопанели AC'97 подключать их не нужно.
   E. Процедура активации микрофона приведена ниже.
   Для ОС Windows® XP / XP 64-бита:
   Выберите «Mixer» (Микшер). Выберите «Recorder» (Устройство записи). Затем щелкните «FrontMic» (Передний микрофон).
   Для ОС Windows® 7 / 7 64-бита, Vista™ / Vista™ 64-бита:
   Перейдите к вкладке «FrontMic» (Передний микрофон) в панели управления Realtek. Отрегулируйте уровень «Recording Volume» (Громкость записи).

Колодка системной панели
(9-контактный PANEL1)
(см. стр. 2, п. 20)



Данная колодка обеспечивает работу нескольких функций передней панели системы.

Русский

Подключите к этому разъему кнопку питания, кнопку сброса и индикатор состояния системы на корпусе в соответствии с указанным ниже назначением контактов. При подключении кабелей необходимо соблюдать полярность положительных и отрицательных контактов.

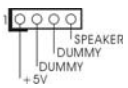
PWRBTN (кнопка питания):
Подключите к этим контактам кнопку питания на передней панели корпуса. Способ выключения системы с помощью кнопки питания можно настроить.

RESET (кнопка сброса):
Подключите к этим контактам кнопку сброса на передней панели корпуса. Нажмите кнопку сброса для перезагрузки компьютера, если компьютер «завис» и нормальную перезагрузку выполнить не удается.

PLED (индикатор питания системы):
Подключите к этим контактам индикатор состояния питания на передней панели корпуса. Этот индикатор светится, когда система работает. Индикатор мигает, когда система находится в режиме ожидания S1/S3. Этот индикатор не светится, когда система находится в режиме ожидания S4, либо выключена (S5).

HDLED (индикатор активности жесткого диска):
Подключите к этим контактам индикатор активности жесткого диска на передней панели корпуса. Этот индикатор светится, когда осуществляется считывание или запись данных на жестком диске.

Конструкция передней панели может различаться в зависимости от корпуса. Модуль передней панели в основном состоит из кнопки питания, кнопки сброса, индикатора питания, индикатора активности жесткого диска, динамика и т.п. При подключении к этому разъему модуля передней панели корпуса удостоверьтесь, что провода подключаются к соответствующим контактам.

Колодка динамика корпуса (4-контактный SPEAKER1) (см. стр. 2, п. 21)		Подключите к этой колодке кабель от динамика на корпусе компьютера.
разъем Power LED (3-контактный PLED1) (см. стр. 2, п. 19)		Подключите индикатор Power LED к этому разъему для отображения статуса питания системы. Этот светодиод продолжит мигать в режиме S1/S3. Светодиод будет выключен в режимах S4 или S5 (система выключена).

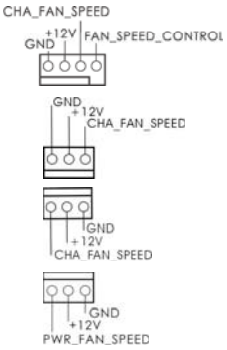
Chassis и Power Fan-соединители

(4-контактный CHA_FAN1)
(см. стр. 2, п. 30)

(3-контактный CHA_FAN2)
(см. стр. 2, п. 29)

(3-контактный CHA_FAN3)
(см. стр. 2, п. 44)

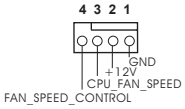
(3-контактный PWR_FAN1)
(см. стр. 2, п. 3)



Подключите кабели вентилятора к соединителям и присоедините черный шнур к штырю заземления. CHA_FAN1, CHA_FAN2 и CHA_FAN3 поддерживают функцию управления вентилятором.

Разъем вентилятора процессора

(4-контактный CPU_FAN1)
(см. стр. 2, п. 4)



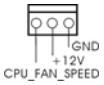
Подключите к этому разъему кабель вентилятора процессора так, чтобы черный провод соответствовал контакту земли.

Данная материнская плата поддерживает вентиляторы процессора с 4-контактным разъемом (функция тихого режима вентилятора), однако вентиляторы с 3-контактным разъемом также будут успешно работать, хотя функция управления скоростью вращения вентилятора окажется недоступной. Если вы хотите подключить вентилятор процессора с 3-контактным разъемом к разъему вентилятора процессора на данной материнской плате, для этого следует использовать контакты 1-3.

Контакты 1-3 подключены

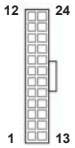
Установка вентилятора с 3-контактным разъемом

(3-контактный CPU_FAN2)
(см. стр. 2, п. 5)



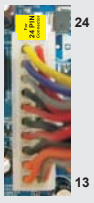
Колодка питания ATX

(24-контактный ATXPWR1)
(см. стр. 2, п. 8)



Подключите к этой колодке кабель питания ATX.

Несмотря на то, что эта материнская плата предусматривает 24-штыревой разъем питания ATX, работа будет продолжаться, даже если адаптируется традиционный 20-штыревой разъем питания ATX. Для использования 20-штыревого разъема питания ATX вставьте источник питания вместе со штекером 1 и штекером 13.



Установка 20-штыревого разъема питания ATX

Русский

Колодка питания 12V-ATX
(8-контактный ATX12V1)
(см. стр. 2, п. 1)

Подключите к этой колодке кабель питания ATX 12V.

Хотя эта объединительная плата обеспечивает ATX с 8 булавками 12V соединитель власти, это может все еще работать, если Вы принимаете традиционный ATX с 4-Pin 12V электропитание. Чтобы использовать электропитание ATX с 4-Pin, пожалуйста включите ваше электропитание наряду с Булавкой 1 и Прикрепите 5.

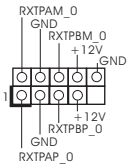
ATX С 4-Pin 12V Установка Электропитания

Разъем питания SLI/XFIRE
(4-контактный SLI/XFIRE_POWER1)
(см. стр.2, п. 43)

SLI/XFIRE_POWER1

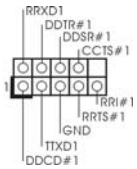
Данный разъем использовать не обязательно, но его следует подключить к разъему питания жесткого диска, если в системную плату одновременно установлены две видеокарты.

Колодки IEEE 1394
(9-контактный FRONT_1394)
(см. стр. 2, п. 31)



Помимо четырех портов IEEE 1394 на панели ввода-вывода имеются две группы контактов на материнской плате для подключения двух дополнительных портовIEEE 1394 каждая.

Колодка COM-порта
(9-контактный COM1)
(см. стр. 2, п. 33)



Данная колодка COM-порта позволяет подключить модуль порта COM.

Колодка HDMI_SPDIF
(2-контактный HDMI_SPDIF1)
(см. стр. 2, п. 34)

Колодка HDMI_SPDIF обеспечивает подачу выходного аудиосигнала на VGA-карту HDMI, что позволяет подключать к системе цифровые телевизоры, проекторы или жидкокристаллические панели HDMI. Соедините эту колодку с разъемом HDMI_SPDIF на VGA-карте HDMI.

Русский

1.5 Быстрое переключение

На этой материнской плате есть три кнопки для ускорения работы: кнопка питания, кнопка перезагрузки и кнопка для очистки CMOS, которые позволяют пользователям быстро включить/выключить или перезагрузить компьютер, сбросить установки CMOS, соответственно.

Power Switch (PWRBTN) (см. стр. 2, п. 18)		Кнопка Power Switch позволяет быстро включить или выключить систему.
Reset Switch (RSTBTN) (см. стр. 2, п. 17)		Кнопка Reset Switch позволяет быстро перезагрузить систему.
Clear CMOS Switch (CLRCBTN) (см. стр. 3, п. 17)		Кнопка Clear CMOS Switch позволяет быстро сбросить установки CMOS.

2. Информация о BIOS

Утилита настройки BIOS (BIOS Setup) хранится во флэш-памяти на материнской плате. Чтобы войти в программу настройки BIOS Setup, при запуске компьютера нажмите <F2> или <Del> во время самопроверки при включении питания (Power-On-Self-Test – POST). Если этого не сделать, то процедуры тестирования POST будут продолжаться обычным образом. Если вы захотите вызвать BIOS Setup уже после POST, перезапустите систему с помощью клавиш <Ctrl> + <Alt> + <Delete> или нажатия кнопки сброса на корпусе системы. Подробную информацию о программе BIOS Setup вы найдете в Руководстве пользователя (в формате PDF) на компакт-диске поддержки.

3. Информация о компакт-диске поддержки с программным обеспечением

Данная материнская плата поддерживает различные операционные системы Microsoft® Windows®: 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit. Поставляемый вместе с ней компакт-диск поддержки содержит необходимые драйверы и полезные утилиты, которые расширяют возможности материнской платы.

Чтобы начать работу с компакт-диском поддержки, вставьте его в дисковод CD-ROM. Если в вашем компьютере включена функция автозапуска (AUTORUN), то на экране автоматически появится главное меню компакт-диска (Main Menu). Если этого не произошло, найдите в папке BIN на компакт-диске поддержки файл ASSETUP.EXE и дважды щелкните на нем, чтобы открыть меню.

1. Introdução

Gratos por comprar nossa placa–mãe ***Z77 WS*** um produto confiável feito com ASRock um estrito controle de qualidade consistente. Com um excelente desempenho, essa placa é dotada de um projeto robusto que atende a ASRock de compromisso com a qualidade e durabilidade.

Este Guia de Instalação Rápida apresenta a placa-mãe e o guia de instalação passo a passo. Mais informações detalhadas sobre a placa-mãe podem ser encontradas no manual do usuário do CD de suporte.

Porque as especificações da placa mãe e o software de BIOS poderiam ser atualizados, o conteúdo deste manual pode ser cambiado sem aviso. Em caso de qualquer modificação deste manual, a versão atualizada estará disponível no website de ASRock sem prévio aviso. Pode também encontrar as listas das mais recentes placas VGA e das CPUs suportadas no site da web da ASRock.

Website de ASRock http://www.asrock.com

Se precisar de apoio técnico em relação a este placa-mãe, por favor visite o nosso sítio da internet para informação específica acerca do modelo que está a utilizar.

www.asrock.com/support/index.asp

1.1 Este pacote contém

Placa-mãe ASRock ***Z77 WS***
(Formato ATX: 12,0 pol. x 9,6 pol., 30,5 cm x 24,4 cm)
Guia de instalação rápida da ASRock ***Z77 WS***
CD de suporte da placa ASRock ***Z77 WS***
Seis cabo de dados ATA Serial (SATA) (Opcional)
Um cabo de alimentação da unidade de disco rígido ATA Serial (SATA) (Opcional)
Uma proteção I/O
Dois Placa Bridge_SLI ASRock
Um Placa 3S_Bridge_SLI ASRock
Um Placa Bridge_SLI 3-Way ASRock

Português

A ASRock recorda-lhe...

Para obter melhor desempenho em Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit, recomendamos que defina a opção Configuração de Armazenamento na BIOS para o modo AHCI. Para mais detalhes acerca da configuração da BIOS consulte o “Manual de utilizador” no nosso CD de suporte.

1.2 Especificações

Plataforma	- Formato ATX: 12,0 pol. x 9,6 pol., 30,5 cm x 24,4 cm - Design de condensadores banhados a ouro de alta qualidade (Condensadores de polímeros condutores de alta qualidade 100% fabricados no Japão)
CPU	- Suporta Intel® Core™ i7 / i5 / i3 de 3ª e 2ª geração no pacote LGA1155 - Design de Poder Digital - Alimentação de 8 + 4 fases - Suporta a tecnologia Intel® Turbo Boost 2.0 - Suporta K-Series desbloqueado CPU
Chipsets	- Intel® Z77 - Suporta a tecnologia Rapid Start da Intel® e a tecnologia Smart Connect
Memória	- Suporte à tecnologia de memória de duplo canal - 4 x slots de DDR3 DIMM - Suporta memória DDR3 3000+(OC)/2400(OC)/2133(OC)/1866 (OC)/1600/1333/1066, não ECC, sem tampão - Capacidade máxima de memória do sistema: 32GB - Suporta Extreme Memory Profile (XMP)1.3/1.2 da Intel®
Slots de Expansão	- 5 x slots de PCI Express 3.0 x16 (PCIE2: versão x16 ou PCIE1/PCIE3/PCIE5/PCIE7: x16/0/16/0 ou versão x8/8/8/8) * O modo PCIE 3.0 apenas é suportado com a CPU Ivy Bridge da Intel® A CPU Sandy Bridge da Intel® apenas suporta o modo PCIE 2.0. - 1 x slot de PCI Express 2.0 x16 (PCIE4 modo @ x4) - 1 x slot de PCI Express 2.0 x1 - Suporta Quad CrossFireX™, 4-Way CrossFireX™, 3-Way CrossFireX™ e CrossFireX™ da AMD - Suporta Quad SLI™, 4-Way SLI™, 3-Way SLI™ e SLI™ da NVIDIA®
VGA integrado	* As saídas Intel® HD Graphics Built-in Visuals e VGA são suportadas apenas por processadores com GPU integrada. - Suporta Intel® HD Graphics Embutido Visuals: Intel® Quick Sync Video 2.0, Intel® InTru™ 3D, Intel® Clear Video HD Technology, Intel® Insider™, Intel® HD Graphics 2500/4000 - Pixel Shader 5.0, DirectX 11 com Intel® Ivy Bridge CPU, Pixel Shader 4.1, DirectX 10.1 com processadores Intel® Sandy Bridge CPU - Memória partilhada máxima 1760MB

	- Suporta HDMI 1.4a Tecnologia com resolução máxima até 1920x1200 @ 60Hz - Suporta as funções Auto Lip Sync (Sincronização automática do som), Deep Color (Profundidade da cor) (12bpc), xvYCC e HBR (áudio de taxa de bits elevada) com HDMI (é necessário um monitor compatível com a norma HDMI) - Suporta função HDCP com portas HDMI - Suporta a norma Blu-ray de alta definição 1080p (BD) / e a reprodução de DVDs de alta definição com portas HDMI
Áudio	- Áudio HD de 7.1 canais com protecção de conteúdo (Realtek ALC898 Audio Codec) - Suporte áudio Blu-ray superior
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - Suporta Wake-On-LAN - Suporta Ethernet com Eficiência Energética 802.3az - Suporta LAN duplo com Teaming função - Suporta PXE
Armazenamento	- 2 x conectores SATA3 a 6,0 Gb/s através Z77 da Intel®, com suporte para RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage e Intel Smart Response Technology), NCQ, AHCI e funções Hot Plug - 4 x conectores SATA3 a 6,0 Gb/s através de ASM1061 da ASMedia, com suporte para NCQ, AHCI e funções Hot Plug (O conector SATA3_A4 é partilhado com a porta eSATA3) - 4 x conectores SATA2 a 3,0 Gb/s através Z77 da Intel®, com suporte para RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage e Intel Smart Response Technology), NCQ, AHCI e funções Hot Plug
Entrada/Saída pelo painel	I/O Panel - 1 x porta para teclado/mouse PS/2 - 1 x porta HDMI - 1 x Porta de saída SPDIF óptica - 2 x porta USB 2.0 padrão - 1 x Conector eSATA3 - 8 x portas USB 3.0 padrão - 2 x porta LAN RJ-45 com LED (LED ACT/LIG e LED VELOCIDADE) - 1 x porta IEEE 1394 - 1 x Interruptor para limpar o CMOS com LED - Ficha de áudio HD: Altifalante traseiro/Central/Baixos/Entrada de linha/Altifalante frontal/Microfone

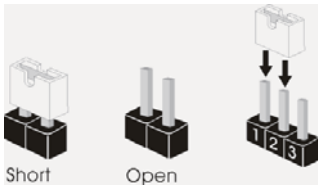
USB3.0	- 4 x Portas USB 3.0 traseiras através de Z77 da Intel®, com suporte para USB 1.0/2.0/3.0 até 5Gb/s - 4 x Portas USB 3.0 traseiras através de EJ188 da Etron, com suporte para USB 1.0/2.0/3.0 até 5Gb/s - 2 x Conector USB 3.0 frontal (suporta 4 portas USB 3.0) através de EJ188 da Etron, com suporte para USB 1.0/2.0/3.0 até 5Gb/s
Conectores	- 1 x Conector do módulo de infravermelho - 1 x Conector CIR - 1 x conector de porta COM - 1 x Conector HDMI_SPDIF - 1 x Conector IEEE 1394 - 1 x Conector para LED de alimentação - 2 x Conector do ventilador da CPU (1 x 4 pinos, 1 x 3 pinos) - 3 x Conector do ventilador da chassis (1 x 4 pinos, 2 x 3 pinos) - 1 x Conector do ventilador da energia (3 pinos) - Conector de força do ATX de 24 pinos - Conector ATX 12 V de 8 pinos - Conector de alimentação SLI/XFire - Conector Áudio do painel frontal - 3 x cabezal USB 2.0 (suporta 6 portas USB 2.0) - 2 x cabezal USB 3.0 (suporta 4 portas USB 3.0) - 1 x Dr. Debug com LED - 1 x Interruptor de alimentação LED - 1 x Interruptor de reposição LED - 1 x Interruptor para limpar o CMOS com LED
BIOS	- 64Mb BIOS UEFI oficial da AMI com suporte para GUI - Suporta dispositivos “Plug and Play” - ACPI 1.1 atendendo a eventos de “wake up” - Suporta dispositivos sem jumper - Suporte para SMBIOS 2.3.1 - CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA Voltage Multi-adjustment
CD de suporte	- Controladores, utilitários, software antivírus (Experimentacao Versao), CyberLink MediaEspresso 6.5 versão de demonstração, ASRock MAGIX Multimedia Suite - OEM
Monitor do HW	- Sensores de temperature do procesador - Medição de temperatura da placa-mãe - Tacômetros de ventilador do Processador/chassis/energia - Ventoinha silenciosa para a CPU/chassis (Permitir velocidade Chassis Auto-Ajuste de temperatura da CPU)

	- CPU/Chassis Fan Controle Multi-Velocidade - Monitoramento de voltagem : +12 V, +5 V, +3.3 V, Vcore
Sistema Operacional	- Microsoft® Windows® 7 / 7 de 64 bits / Vista™ / Vista™ de 64 bits / XP / XP de 64 bits
Certificações	- FCC, CE, WHQL - “ErP/EuP Ready” (é necessária alimentação eléctrica “ErP/EuP Ready”)

* Para informações mais detalhadas por favor visite o nosso sítio Web: http://www.asrock.com

1.3 Configuração dos Jumpers

A ilustração mostra como os jumpers são configurados. Quando há uma capa de jumpers sobre os pinos, diz–se que o jumper está “curto”. Não havendo capa sobre os pinos, o jumper está “aberto”. A ilustração mostra um jumper de 3 pinos em que os pinos 1 e 2 están “curtos” quando a capa de jumper estiver colocada sobre esses 2 pinos.



Jumper	Configuração	
Restaurar CMOS (CLRCMOS1, jumper de 3 pinos) (veja a folha 2, No. 22)	 Configuração-padrão	 Limpar o CMOS

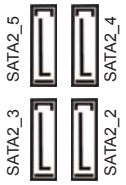
Nota: CLRCMOS1 permite você limpar os dados em CMOS. Os dados em CMOS incluem informações da configuração do sistema como: por exemplo a senha do sistema, data, tempo, e os parámetros da configuração do sistema. Para limpar e reconfigurar os parámetros do sistema a configuração inicial da fábrica, por favor desligue o cabo de força, ponha em curto–circuito os pin 2 e pin 3 de CLRCMOS1 por mais de 5 segundos para limpar o CMOS usando um jumper. Por favor lembrese de remover o jumper depois de limpar o COMS. Se precisar limpar o CMOS ao concluir a atualização do BIOS, deverá reiniciar o sistema primeiro e, em seguida, desligá-lo antes de executar a ação de limpeza o CMOS. Tenha em atenção que a palavra-passe, data, hora, perfil predefinido de utilizador, 1394 GUID e endereço MAC apenas serão limpos se a bateria do CMOS for retirada.

O Interruptor para limpar o CMOS tem a mesma função do Jumper para limpar o CMOS.

1.4 Conectores

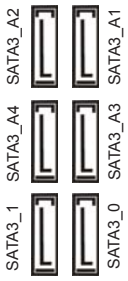
Os conectores NÃO SÃO jumpers. NÃO coloque capas de jumper sobre estes conectores. A colocação de pontos de jumper sobre os conectores causará danos irreversíveis à placa-mãe.

Conectores ATA2 Serial
(SATA2_2_3: veja a folha 2, No. 15)
(SATA2_4_5: veja a folha 2, No. 16)



Estes quatro conectores Serial ATA (SATA2) suportam unidades de disco rígido SATA ou SATA2 como dispositivos de armazenamento internos. A atual interface SATA2 permite uma taxa de transferência de dados de até 3.0 Gb/s.

Conectores ATA3 Serial
(SATA3_A1_A2:
veja a folha 2, No. 12)
(SATA3_A3_A4:
veja a folha 2, No. 13)
(SATA3_0_1:
veja a folha 2, No. 14)



Estes seis conectores Serial ATA (SATA3) suportam unidades de disco rígido SATA ou SATA3 como dispositivos de armazenamento internos. A atual interface SATA3 permite uma taxa de transferência de dados de até 6.0 Gb/s. Se tiver ligado a porta eSATA3 no painel de entrada/saída existente na parte de trás, a função SATA3_A4 interna não funcionará.

Cabo de dados ATA (SATA)
(opcional)

Tanto a saída do cabo de Serial dados SATA pode ser conectado ao disco rígido SATA / SATA2 / SATA3 quanto o conector SATA2 / SATA3 na placa mãe.

Português

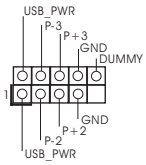
Cabo de Alimentação ATA (SATA) (opcional)

Conecte a saída de cor preta do cabo de alimentação SATA ao conector de alimentação em cada acionador. Em seguida, conecte a saída branca do cabo de alimentação SATA ao conector de alimentação da fonte.

Cabezal USB 2.0

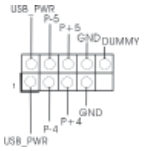
(USB2_3 de 9 pinos)

(veja a folha 2, No. 25)



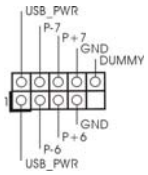
(USB4_5 de 9 pinos)

(veja a folha 2, No. 26)



(USB6_7 de 9 pinos)

(veja a folha 2, No. 27)

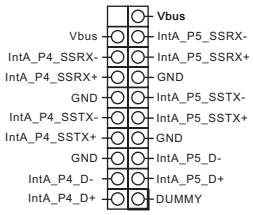


Além das dois portas USB 2.0 por defeito no painel de entrada/saída, há três ligações USB 2.0 nesta placa-mãe. Cada ligação USB 2.0 pode suportar dois portas USB 2.0.

Cabezal USB 2.0

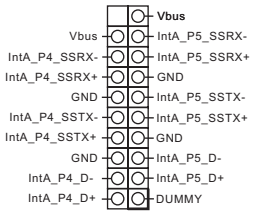
(USB3_9_10 de 19 pinos)

(veja a folha 2, No. 10)



(USB3_11_12 de 19 pinos)

(veja a folha 2, No. 9)

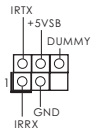


Além das oito portas USB 3.0 por defeito no painel de entrada/saída, há dois ligações USB 3.0 nesta placa-mãe. Cada ligação USB 3.0 pode suportar dois portas USB 3.0.

Conector do módulo de infravermelho

(IR1 de 5 pinos)

(veja a folha 2, No. 32)

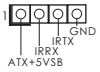


Este conector suporta um módulo de infravermelho para transmissão e recepção sem fio, opcional.

Conector do módulo de infravermelhos

(CIR1 de 4 pinos)

(veja a folha 2, No. 28)

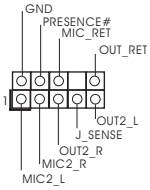


Este conector pode ser utilizado para ligar o receptor do controlo remoto.

Conector Áudio do painel frontal

(HD_AUDIO1 de 9 pinos)

(veja a folha 2, No. 35)



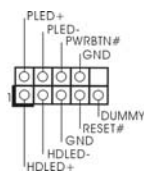
Esta é uma interface para o cabo de áudio no painel frontal, que permite uma conexão e controle convenientes dos dispositivos de áudio.

1. Áudio de elevada definição que suporta a sensibilidade da tomada, mas o fio do painel existente no chassis tem de suportar HDA para funcionar correctamente. Siga s instruções que aparecem no manual e no manual do chassis para instalar o sistema.
2. Se utilizar o painel de áudio AC'97, instale-o no cabeçalho de áudio do painel frontal, como a figura abaixo mostra:
   A. Ligue o Mic_IN (MIC) ao MIC2_L.
   B. Ligue o Audio_R (RIN) ao OUT2_R e o Audio_L (LIN) ao OUT2_L.
   C. Ligue o Ground (GND) ao Ground (GND).
   D. MIC_RET e OUT_RET são apenas para o painel de áudio HD. Não necessita de os ligar para o painel de áudio AC'97.
   E. Para activar o microfone frontal.
      Para os Sistemas Operativos Windows® XP / XP 64 bits:
      Seleccione "Misturador". Seleccione "Gravador". Depois clique em "Microfone frontal".
      Para os Sistemas Operativos Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit:
      Aceda ao separador "Microfone frontal" no painel de Controlo Realtek. Ajuste o "Volume de gravação".

Conector do painel do sistema

(PANEL1 de 9 pinos)

(veja a folha 2, No. 20)



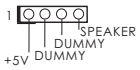
Este conector acomoda várias funções do painel frontal do sistema.

Português

Ligue o botão de alimentação, o botão de reposição e o indicador do estado do sistema no chassis a este conector de acordo com a descrição abaixo. Tenha em atenção os pinos positivos e negativos antes de ligar os cabos.

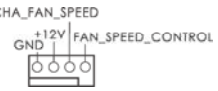
PWRBTN (Botão de alimentação):
Ligue ao botão de alimentação no painel frontal do chassis. Pode configurar a forma para desligar o seu sistema através do botão de alimentação.
RESET (Botão de reposição):
Ligue ao botão de reposição no painel frontal do chassis. Prima o botão de reposição para reiniciar o computador caso este bloqueie e não seja possível reiniciar normalmente.
PLED (LED de alimentação do sistema):
Ligue ao indicador do estado da alimentação no painel frontal do chassis. O LED ficará acesso quando o sistema estiver em funcionamento. O LED ficará intermitente quando o sistema estiver no estado de suspensão S1/S3. O LED ficará desligado quando o sistema estiver nos estados de suspensão S4 ou desligado (S5).
HDLED (LED de actividade do disco rígido):
Ligue ao LED de actividade do disco rígido no painel frontal do chassis. O LED ficará acesso quando o disco rígido estiver a ler ou a escrever dados.

O design do painel frontal poderá variar dependendo do chassis. Um módulo de painel frontal consiste principalmente em um botão de alimentação, um botão de reposição, um LED de alimentação, um LED de actividade do disco rígido, um altifalante, etc. Ao ligar o seu módulo de painel frontal do chassis a este conector, certifique-se que os fios e os pinos têm uma correspondência exacta.

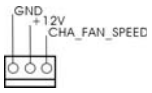
Conector do alto-falante do chassi (SPEAKER1 de 4 pinos) (veja a folha 2, No. 21)		Ligue o alto-falante do chassi neste conector.
Conector do LED de alimentação (PLED1 de 3 pinos) (veja a folha 2, No. 19)		Ligue o LED de alimentação do chassis a este conector para indicar o estado de alimentação do sistema. O LED ficará acesso quando o sistema estiver em funcionamento. O LED fica intermitente no estado S1/S3. O LED fica desligado nos estados S4 ou no estado S5 (desligado).

Conector do ventilador do chassis/energia

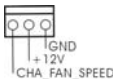
(CHA_FAN1 de 4 pinos)
(veja a folha 2, No. 30)



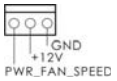
(CHA_FAN2 de 3 pinos)
(veja a folha 2, No. 29)



(CHA_FAN3 de 3 pinos)
(veja a folha 2, No. 44)



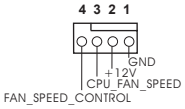
(PWR_FAN1 de 3 pinos)
(veja a folha 2, No. 3)



Ligue o cabo do ventilador neste conector, coincidindo o fio preto com o pino de aterramento. CHA_FAN1, CHA_FAN2 e CHA_FAN3 suportam a função de Controlo de Ventoinha.

Conector do ventilador da CPU

(CPU_FAN1 de 4 pinos)
(veja a folha 2, No. 4)



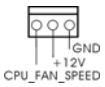
Ligue o cabo do ventilador da CPU, coincidindo o fio preto com o pino de aterramento.

Apesar de esta placa-mãe possuir 4 apoios para uma ventoinha de CPU (Ventoinha silenciosa), uma ventoinha de 3 pinos para CPU poderá funcionar mesmo sem a função de controlo de velocidade da ventoinha. Se pretender ligar uma ventoinha de 3 pinos para CPU ao conector de ventoinha do CPU nesta placa-mãe, por favor, ligue-a aos pinos 1-3.

Pinos 1-3 ligados

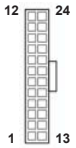
Instalação de Ventoinha de 3 pinos

(CPU_FAN2 de 3 pinos)
(veja a folha 2, No. 5)



Conector de força do ATX

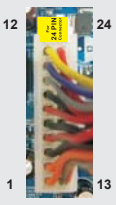
(ATXPWR1 de 24 pinos)
(veja a folha 2, No. 8)



Ligue a fonte de alimentação ATX neste conector.

Embora esta placa-mãe providencie um conector de energia ATX de 24 pinos, pode apesar disso funcionar com a adapta-ção de uma fonte de energia tradicional de 20 pinos. Para usar a fonte de alimentação de 29 pinos, por favor ligue a sua fonte de alimentação com o Pino 1 e o Pino 13.

Instalação da Fonte de alimentação ATX de 20 Pinos



Português

Conector de força do ATX 12V

(ATX12V1 de 8 pinos)

(veja a folha 2, No. 1)

Ligue a fonte de alimentação ATX 12V neste conector.

Embora esta placa-mãe providencie um conector de energia ATX 12V de 8 pinos, pode apesar disso funcionar com a adapta-ção de uma fonte de energia tradicional de 4 pinos. Para usar a fonte de alimentação de 4 pinos, por favor ligue a sua fonte de alimentação com o Pino 1 e o Pino 5.

Instalação da Fonte de alimentação ATX 12V de 4 Pinos

Conector de alimentação SLI/XFIRE

(SLI/XFIRE_PWR1 de 4 pinos)

(veja a folha 2, No. 43)

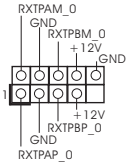
SLI/XFIRE_POWER1

Não é necessário utilizar este conector, mas deverá ligá-lo a um conector de alimentação de disco rígido quando estiver a utilizar duas placas gráficas com esta placa principal.

Cabezal IEEE 1394

(FRONT_1394 de 9 pinos)

(veja a folha 2, No. 31)

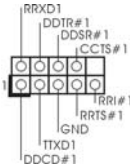


Além das uns portas IEEE 1394 por defeito no painel de entrada/saída, há uns ligações IEEE 1394 nesta placa-mãe. Cada ligação IEEE 1394 pode suportar dois portas IEEE 1394.

Conector de porta de série

(COM1 de 9 pinos)

(veja a folha 2, No. 33)



Este conector COM1 suporta um módulo de porta de série.

Conector HDMI_SPDIF

(HDMI_SPDIF1 de 2 pinos)

(veja a folha 2, No. 34)

O conector HDMI_SPDIF, que oferece saída de áudio SPDIF para placas VGA HDMI, permite ligar televisores digitais/ projectores/LCD com entrada HDMI ao sistema. Ligue o conector HDMI_SPDIF da placa VGA HDMI a este conector.

1.5 Interruptores inteligentes

A placa principal tem três interruptores inteligentes: interruptor de alimentação, interruptor de reposição e interruptor para limpar o CMOS, que permitem aos utilizadores ligar/desligar ou repor o sistema e limpar os valores CMOS rapidamente.

Interruptor de alimentação (PWRBTN) (veja a folha 2, No. 18)		O interruptor de alimentação é um interruptor inteligente, que permite aos utilizadores ligar/ desligar o sistema rapidamente.
Interruptor de reposição (RSTBTN) (veja a folha 2, No. 17)		O interruptor de reposição é um interruptor inteligente, que permite aos utilizadores repor o sistema rapidamente.
Interruptor para limpar o CMOS (CLRCBTN) (veja a folha 3, No. 17)		O interruptor para limpar o CMOS é um interruptor inteligente, que permite aos uti lizadores limpar os valores CMOS rapidamente.

2. Informações da BIOS

O Utilitário de Configuração do BIOS está armazenado no chip FWH do BIOS. Ao iniciar o computador, pressione <F2> ou <Del> durante o Autoteste de iniciação (POST) para acessar o Utilitário de Configuração do BIOS; caso contrário, o POST continuará com as rotinas de teste. Se desejar acessar o Utilitário de Configuração do BIOS depois do POST, reinicie o sistema pressionando <Ctl> + <Alt> + <Del>, ou pressionando o botão de reinício no chassi do sistema. Para as informações detalhadas sobre o Utilitário de Configuração do BIOS, consulte o Manual do Usuário (arquivo PDF) no CD de suporte.

3. Informações do CD de Suporte

Esta placa Mãe suporta vários sistemas operacionais: Microsoft® Windows®: 7 / 7 de 64 bits / Vista™ / Vista™ de 64 bits / XP / XP de 64 bits. O CD de instalação que acompanha a placa Mãe contem: drivers e utilitários necessários para um melhor desempenho da placa Mãe. Para começar a usar o CD de instalação, introduza o CD na leitora de CD-ROM do computador. Automaticamente iniciará o menu principal, casa o AUTORUN esteja ativado. Se o menu principal não aparecer automaticamente, explore o CD e execute o “ASSETUP.EXE” localizado na pasta BIN.

1. Giriş

ASRock'ın kesintisiz titiz kalite denetimi altında üretilen güvenilir bir anakart olan ASRock ***Z77 WS*** anakartını satın aldığınız için teşekkür ederiz. ASRock'ın kalite ve dayanıklılık konusundaki kararlılığına uygun güçlü tasarımıyla mükemmel bir performans sunar.

Bu Hızlı Takma Kılavuzu anakarta giriş ve adım adım takma kılavuzu içerir. Anakart hakkında daha ayrıntılı bilgiyi Destek CD'sinde sunulan kullanıcı kılavuzunda bulabilirsiniz.

Anakart özellikleri ve BIOS yazılımı güncelleştirilebileceğinden bu kılavuzun içeriği önceden haber verilmeksizin değişebilir. Bu belgede değişiklik yapılması durumunda, güncelleştirilmiş sürüm ayrıca haber verilmeksizin ASRock web sitesinde sunulur. En son VGA kartlarını ve CPU destek listelerini de ASRock web sitesinde bulabilirsiniz.
ASRock web sitesi http://www.asrock.com
Bu anakartla ilgili teknik desteğe ihtiyacınız olursa, kullandığınız modele özel bilgiler için lütfen web sitemizi ziyaret edin.
www.asrock.com/support/index.asp

1.1 Paket İçindekiler

ASRock ***Z77 WS*** Anakart
(ATX Form Faktörü: 12,0-inç x 9,6-inç, 30,5 cm x 24,4 cm)
ASRock ***Z77 WS*** Hızlı Takma Kılavuzu
ASRock ***Z77 WS*** Destek CD'si
6 x Seri ATA (SATA) Veri Kablosu (İsteğe Bağlı)
1 x Seri ATA (SATA) HDD Güç Kablosu (İsteğe Bağlı)
1 x G/Ç Panel Kalkanı
2 x ASRock SLI_Bridge Kartı
1 x ASRock SLI_Bridge_3S Kartı
1 x ASRock 3-Yollu SLI Köprü Kart

ASRock Size Şunu Hatırlatır...
Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit ile daha iyi performans elde etmek için, Depolama Konfigürasyonundaki BIOS seçeneğini AHCI moduna ayarlamanız tavsiye edilir. BIOS ayarı için, ayrıntıları öğrenmek üzere lütfen destek CD'mizdeki "Kullanıcı Kılavuzu"na bakın.

1.2 Özellikler

Platform	- ATX Form Faktörü: 12,0-inç x 9,6-inç, 30,5 cm x 24,4 cm - Birinci Sınıf Altın Kapasitör tasarımı (%100 Japon malı yüksek kaliteli İletken Polimer Kapasitörler)
CPU	- LGA1155 Paketi'deki 3. ve 2. Nesil Intel® Core™ i7 / i5 / i3'yi destekler - Digi Güç Tasarımı - 8 + 4 Güç Fazı Tasarımı - Intel® Turbo Boost 2.0 Teknolojisini destekler
Yonga seti	- Intel® Z77 - Intel® Rapid Start Teknolojisini ve Smart Connect Teknolojisi'ni destekler
Bellek	- Çift Kanallı DDR3 Belleği Teknolojisi - 4 x DDR3 DIMM yuva - DDR3 3000+(OC)/2400(OC)/2133(OC)/1866(OC)/1600/1333/1066 ECC olmayan, ara belleksiz bellek - Sistem belleğinin maks. kapasitesi: 32 GB - Intel® Extreme Bellek Profilini (XMP)1.3/1.2 destekler
Genişletme Yuvası	- 5 x PCI Express 3.0 x16 yuva (PCIE2: x16 modu veya PCIE1/PCIE3/PCIE5/PCIE7: x16/0/16/0 modu veya x8/8/8/8 modu) * PCIE 3.0, sadece Intel® Ivy Köprü İşlemcisiyle desteklenir. Intel® Sandy Köprü İşlemciyle, sadece PCIE 2.0'ı destekler. - 1 x PCI Express 2.0 x16 yuva (PCIE4: x4 modu) - 1 x PCI Express 2.0 x1 yuva - AMD Quad CrossFireX™, 4-Way CrossFireX™, 3-Way CrossFireX™ ve CrossFireX™'i destekler - NVIDIA® Quad SLI™, 4-Way SLI™, 3-Way SLI™ ve SLI™'yı destekler
Grafikler	* Intel® HD Grafik Yerleşik Görselleri ve VGA çıkışları, yalnızca GPU entegre işlemciler tarafından desteklenmektedir. - Intel® HD Graphics Dahili Görselleri: Intel® Hızlı Eşitleme Videosu 2.0, Intel® InTru™ 3D, Intel® Clear Video HD Teknolojisi, Intel® Insider™, Intel® HD Graphics 2500/4000 - Pixel Shader 5.0, Intel® Ivy Bridge işlemciye sahip DirectX 11. Pixel Shader 4.1,Intel® Sandy Bridge işlemciye sahip DirectX 10.1 - Maks. paylaюolan bellek 1760 MB - 60Hz'de 1920x1200'e kadar maks. зцzьnьrlьkle HDMI 1.4a Teknolojisini destekler - Auto Lip Sync, Deep Color (12bpc), HDMI ile xvYCC ve

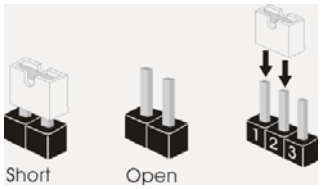
	HBR'yi (Yьksek Bit Həzlə Ses) destekler (Uyumlu HDMI monitцr gerekir) - HDMI portlarəyla HDCP iюlevini destekler - HDMI portlarəyla Tam HD 1080p Blu-ray (BD) / HD-DVD oynatəmənə destekler
Ses	- İçerik Korumalı (Realtek ALC898 Ses Codec'i) 7,1 Kanal HD Ses - Premium Blu-ray ses desteği
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/sn - Broadcom BCM57781 - LAN'da Uyan özelliğini destekler - Enerji Verimli Ethernet 802.3az desteği - Ekip oluşturma işlevi Çift LAN'ı destekler - PXE'yi destekler
Depolama	- 2 x SATA3 6,0Gb/sn Intel® Z77 konektör, donanım RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage ve Intel Smart Response Teknolojisini), NCQ, AHCI ve "Sistem Açıkken Bileşen Takma" işlevlerini - 4 x SATA3 6,0Gb/sn ASMedia ASM1061 konektör, donanım NCQ, AHCI ve "Sistem Açıkken Bileşen Takma" işlevlerini (SATA3_A4 konektörü eSATA3 portuyla paylaşılır) destekler - 4 x SATA2 3,0Gb/sn Intel® Z77 konektör, donanım RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage ve Intel Smart Response Teknolojisini), NCQ, AHCI ve "Sistem Açıkken Bileşen Takma" işlevlerini
Arka Panel G/3	G/3 Paneli - 1 x PS/2 Klavye/Fare Portu - 1 x HDMI Portu - 1 x Optik SPDIF Зəкəюə Portu - 2 x Kullanəma Hazər USB 2.0 Portu - 1 x eSATA3 Konektörü - 8 x Kullanəma Hazər USB 3.0 Portu - 2 x RJ-45 LAN Portu, LED'li (AKT/LƏNK LED'i ve HIZ LED'i) - 1 x IEEE 1394 Konektörü - 1 x CMOS'u Temizleme Anahtarı - HD Ses Jakı: Arka Hoparlör/Orta/Bas/Hat Girişi/Ön Hoparlör/ Mikrofon
USB 3.0	- Intel® Z77 tarafından 4 x Arka USB 3.0 bağlantı noktası, 5Gb/s'ye kadar USB 1.0/2.0/3.0 - Etron EJ188 tarafından 4 x Arka USB 3.0 bağlantı noktası, 5Gb/s'ye kadar USB 1.0/2.0/3.0 - Etron EJ188 tarafından 2 x Ön USB 3.0 bağlantısı (4 USB 3.0

	bağlantı noktasını destekler), 5Gb/s'ye kadar USB 1.0/2.0/3.0
Konektör	- 1 x KÖ fişi - 1 x Kullanıcı Kızılötesi Modül Bağlantısı - 1 x COM portu fişi - 1 x HDMI_SPDIF fişi - 1 x IEEE 1394 fişi - 1 x Güç LED'i fişi - 2 x CPU FAN konektörü (1 x 4-pinli, 1 x 3-pinli) - 3 x Kasa FAN konektörü (1 x 4-pinli, 2 x 3-pinli) - 1 x Güç FAN konektörü (3-pinli) - 24 pin ATX güç konektörü - 8 pin 12V güç konektörü - SLI/XFire güç konektörü - Ön panel ses konektörü - 2 x USB 2.0 fiş (4 USB 2.0 portu destekler) - 1 x USB 3.0 fiş (2 USB 3.0 portu destekler) - 1 x Dr. Debug (7 Segmentli Hata Ayıklama LED'i) - 1 x LED'li Güç Anahtarı - 1 x LED'li Sıfırlama Anahtarı - 1 x LED'li CMOS'u Temizleme Anahtarı
BIOS Özelliği	- 64 Mb GUI destekli AMI UEFI Geçerli BIOS - "Tak Çalıştır"ı destekler - ACPI 1.1 Uyumlu Uyandırma Olayları - Jumpersız ayarlamayı destekler - SMBIOS 2.3.1 Desteği - CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA Voltaj Çoklu ayarı
Destek CD'si	- Sürücüler, Yardımcı Programlar, AntiVirüs Yazılımı (Deneme Sürümü), CyberLink MediaEspresso 6.5 Deneme Sürümü, ASRock MAGIX Multimedya Seti - OEM
Donanım Monitör	- CPU Sıcaklık Duyarlılığı - Kasa Sıcaklık Duyarlılığı - CPU/Kasa/Güç Fan Takometresi - İşlemci/Kasa Sessiz Fanı (Kasa Fan Hızı'nın İşlemci sıcaklığı ile Otomatik Ayar'ına izin verir) - CPU/Kasa Fan Çoklu-Hız Kontrolü - Voltaj İzleme: +12V, +5V, +3,3V, CPU Vcore
İS	- Microsoft® Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit uyumlu
Sertifikalar	- FCC, CE, WHQL - ErP/EuP Hazır (ErP/EuP hazır güç kaynağı gerekli)

* Ayrıntılı ürün bilgileri için lütfen web sitemizi ziyaret edin: http://www.asrock.com

1.3 Jumper'ların Ayarı

Şekilde jumper'ların nasıl ayarlandıkları gösterilmektedir. Jumper kapağı pinler üzerine yerleştirildiğinde jumper "Kapalı" dır. Jumper kapağı pinler üzerindeyken jumper "Açık" tır. Şekilde pin1 ve pin2'si "Kapalı" olan jumper kapağı bu 2 pine yerleştirilmiş 3-pinli jumper gösterilmektedir.



Jumper	Ayar
CMOS'u temizleme (CLRCMOS1, 3-pinli jumper) (bkz. s.2 No. 22)	1_2 Default 2_3 Clear CMOS

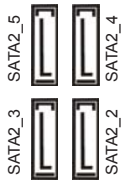
Not: CLRCMOS1, CMOS'daki verilerinizi temizlemenize olanak sağlar. Sistem parametrelerini temizlemek ve varsayılan ayara sıfırlamak için lütfen bilgisayarı kapatın ve güç kablosunun fişini güç kaynağından çekin. 15 saniye bekledikten sonra, pin2 ve pin3'ü CLRCMOS1'de 5 saniye kısaltmak için bir atlatıcı şapkası kullanın. Ancak, BIOS'u güncelledikten hemen sonra lütfen CMOS'u temizlemeyin. BIOS'u güncellemeyi tamamladığınızda CMOS'u temizlemeniz gerekirse, ilk olarak sistemi başlatmanız ve ardından CMOS temizleme işlemini gerçekleştirmeden önce kapatmanız gereklidir. Parola, tarih, saat, kullanıcı varsayılan profili, 1394 GUID ve MAC adresinin yalnızca CMOS pili çıkarıldığında temizleneceğini lütfen aklınızda bulundurunuz.

CMOS Devresini Temizle, CMOS Ayarı'nı Temizle ile aynı işleve sahiptir.

1.4 Yerleşik Fişler ve Konektörler

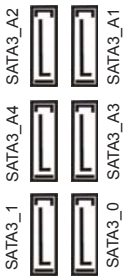
Yerleşik fişler ve konektörler jumper DEĞİLDİR. Bu fişlerin ve konektörlerin üzerine jumper kapakları YERLEŞTİRMEYİN. Fişlerin ve konektörlerin üzerine jumper kapakları yerleştirmek anakartın kalıcı olarak zarar görmesine neden olabilir!

Seri ATA2 Konektörler
(SATA2_2_3: bkz. s.2, No. 15)
(SATA2_4_5: bkz. s.2, No. 16)



Bu dört Seri ATA2 (SATA2) konektör, dahili depolama cihazları için SATA veri kablolarını destekler. Geçerli SATA2 arayüzü 3,0 Gb/sn veri aktarım hızına izin verir.

Seri ATA3 Konektörler
(SATA3_A1_A2: bkz. s.2, No. 12)
(SATA3_A3_A4: bkz. s.2, No. 13)
(SATA3_0_1: bkz. s.2, No. 14)



Bu altı Seri ATA3 (SATA3) konektör, dahili depolama cihazları için SATA veri kablolarını destekler. Geçerli SATA3 arayüzü 6,0 Gb/sn veri aktarım hızına izin verir. Arka I/O'daki eSATA3 bağlantı noktasındaki HDD'yi yüklemek isterseniz, dahili SATA3_A4 çalışmayacaktır.

Seri ATA (SATA)
Veri Kablosu
(İsteğe bağlı)

SATA veri kablosunu her iki ucu da SATA / SATA2 / SATA3 sabit diskine veya anakarttaki SATA2 / SATA3 konektörüne bağlanabilir.

Seri ATA (SATA) Güç Kablosu
(İsteğe bağlı)

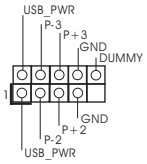
Lütfen SATA güç kablosunun siyah ucunu her sürücüde bulunan güç konektörüne bağlayın. Sonra, SATA güç kablosunun beyaz ucunu güç kaynağının güç konektörüne bağlayın.

Türkçe

USB 2.0 Fişleri

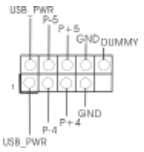
(9-pinli USB2_3)

(bkz. s.2 No. 25)



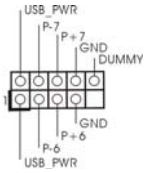
(9-pinli USB4_5)

(bkz. s.2 No. 26)



(9-pinli USB6_7)

(bkz. s.2 No. 27)

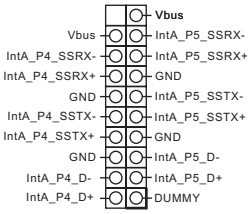


G/Ç panelindeki varsayılan iki USB 2.0 portundan başka, bu anakartta üç USB 2.0 fişi bulunur. Her USB 2.0 fişi iki USB 2.0 portunu destekler.

USB 3.0 Fişleri

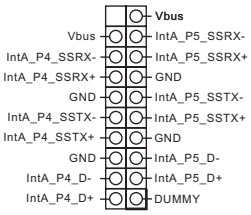
(19-pinli USB3_9_10)

(bkz. s.2 No. 10)



(19-pinli USB3_11_12)

(bkz. s.2 No. 9)

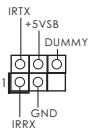


I/O panelinde bulunan sekiz adet varsayılan USB 3.0 bağlantı noktasının yanı sıra, bu ana kart üzerinde iki adet USB 3.0 bağlantısı bulunur. Bu USB 3.0 bağlantısı iki adet USB 3.0 bağlantı noktasını destekleyebilir.

Kızılötesi Modülü Fişi

(5-pinli IR1)

(bkz. s.2 No. 32)

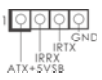


Bu fiş, isteğe bağlı bir kablosuz aktarma ve alma kızılötesi modülünü destekler.

Kullanıcı Kızılötesi Modül Bağlantısı

(4-pinli CIR1)

(bkz. s.2 No. 28)



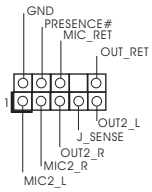
Bu fiş, uzaktan kumanda alıcısı destekler.

Türkçe

Ön Panel Ses Fişi

(9-pinli HD_AUDIO1)

(bkz. s.2 No. 35)



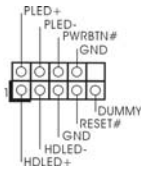
Bu, panel ses kablosu için uygun bağlantı sağlayan ve ses cihazlarını kontrol etmeyi sağlayan bir arayüzdür.

1. Yükse Tanımlı Ses Jak Duyarlılığını destekler, ancak kasadaki panel kablosunun HDA'nın düzgün çalışmasını desteklemesi gerekir. Lütfen sisteminizi yüklemek için kılavuzumuzdaki ve kasa kılavuzundaki talimatları izleyin.
2. AC'97 ses paneli kullanıyorsanız, lütfen ön panel ses fişine aşağıdaki gibi takın:
   A. Mic_IN'i (MIC) MIC2_L'ye bağlayın.
   B. Audio_R'yi (RIN) OUT2_R'ye ve Audio_L'yi (LIN) OUT2_L'ye bağlayın.
   C. Ground'u (GND) Ground'a (GND) bağlayın.
   D. MIC_RET ve OUT_RET yalnızca HD ses paneli içindir. Bunları AC'97 ses paneli için bağlamanız gerekmez.
   E. Ön mikrofonu etkinleştirmek için
   Windows® XP / XP 64-bit İS için:
   "Karıştırıcı"yı seçin. "Kaydedici"yi seçin. Sonra "Ön Mikrofon"u tıklatın.
   Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit İS için:
   Realtek Kontrol panelinde "Ön Mikrofon" Sekmesine gidin. "Kayıt Ses Seviyesi"ni ayarlayın.

Sistem Paneli Fişi

(9-pinli PANEL1)

(bkz. s.2 No. 20)



Bu fiş, birçok sistem ön paneli işlevini barındırır.

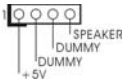
Kasa üzerindeki güç anahtarını, sıfırlama anahtarını ve sistem durumu göstergesini aşağıdaki pin atamalarına göre bu bağlantıya bağlayın. Kabloları bağlamadan önce pozitif ve negatif pinlere dikkat edin.

PWRBTN (Güç Anahtarı):
Kasa üzerindeki güç anahtarını ön panele bağlayın. Güç anahtarını kullanarak sisteminizi kapatma şeklinizi yapılandırabilirsiniz.
RESET (Sıfırlama Anahtarı):
Kasa üzerindeki sıfırlama anahtarını ön panele bağlayın. Bilgisayar donarsa veya normal bir yeniden başlatma gerçekleştirilemezse, bilgisayarı yeniden başlatmak için sıfırlama anahtarına basın.
PLED (Sistem Gücü LED'i):
Kasa üzerindeki güç durumu göstergesini ön panele bağlayın. Sistem çalışırken LED yanar. Sistem S1/S3 uyku modunda iken LED yanıp sön meye devam eder. Sistem S4 uyku modunda veya kapalı (S5) iken LED söner.

HDLED (Sabit Disk Çalışma LED'i):
Kasa üzerindeki sabit disk çalışma LED'ini ön panele bağlayın. Sabit disk veri okurken veya yazarken LED yanar.

Ön panel tasarımı kasaya göre değişiklik gösterebilir. Ön panel modülünde temel olarak güç anahtarı, sıfırlama anahtarı, güç LED'i, sabit disk çalışma LED'i, hoparlör vb. bulunur. Kasa ön panel modülünüzü bu bağlantıya bağlarken, kablo atamalarının ve pin atamalarının doğru biçimde eşleştirildiğinden emin olun.

Kasa Hoparlörü Fişi
(4-pinli SPEAKER1)
(bkz. s.2 No. 21)

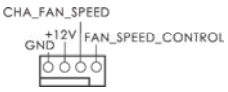


Lütfen kasa hoparlörünü bu fişe bağlayın.

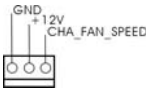
Güç LED'i Fişi
(3-pinli PLED1)
(bkz. s.2 No. 19)

Sistem gücü durumunu belirtmek için lütfen kasa güç LED'ini bu fişe bağlayın. Sistem çalışırken LED açıktır. LED S1/S3 durumunda yanıp sönmeye devam eder. LED S3/S4 durumunda veya S5 durumun da (güç kapalı) kapalıdır.

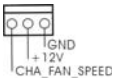
Kasa/güç Fan Konektörü
(4-pinli CHA_FAN1)
(bkz. s.2 No. 30)



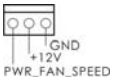
(3-pinli CHA_FAN2)
(bkz. s.2 No. 29)



(3-pinli CHA_FAN3)
(bkz. s.2 No. 44)

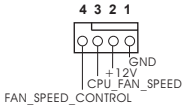


(3-pinli PWR_FAN1)
(bkz. s.2 No. 3)



Lütfen kasa fan kablolarını fanına bu konektöre bağlayın ve siyah kabloyu toprak pinine bağlayın. CHA_FAN1, CHA_FAN2 ve CHA_FAN3 destekli Fan Denetimi.

CPU Fan Konektörü
4-pinli CPU_FAN1)
(bkz. s.2 No. 4)



Lütfen fan kablolarını CPU fanına bu konektöre bağlayın ve siyah kabloyu toprak pinine bağlayın.

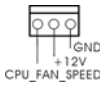
Türkçe

Bu anakart 4-Pinli CPU fan (Sessiz Fan) desteği sağlasa da, 3-Pinli CPU fan hızı kontrol işlevi olmadan bile hala başarılı bir şekilde çalışabilir. 3-Pinli CPU fanı bu konektördeki CPU fan konektörüne bağlamayı planlıyorsanız, lütfen Pin 1-3'e bağlayın.

Pin 1-3 Bağlı

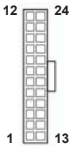
3-Pinli Fanı Takma

(3-pinli CPU_FAN2)
(bkz. s.2 No. 5)



ATX Güç Konektörü

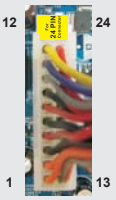
(24-pinli ATXPWR1)
(bkz. s.2 No. 8)



Lütfen bir ATX güç kaynağını bu konektöre bağlayın.

Bu anakart 24-pinli ATX güç konektörü sağlasa da geleneksel bir 20-pinli ATX güç kaynağı bağlarsanız da çalışabilir. 20-pinli ATX güç kaynağını kullanmak için, lütfen güç kaynağınızı Pin 1 ve Pin 13'le birlikte takın.

20-Pinli ATX Güç Kaynağını Takma



ATX 12V Güç Konektörü

(8-pinli ATX12V1)
(bkz. s.2 No. 1)

Lütfen bir ATX 12V güç kaynağını bu konektöre bağlayın.

Bu anakart 8-pinli ATX 12V güç konektörü sağlasa da geleneksel bir 4-pinli ATX 12V güç kaynağı bağlarsanız da çalışabilir. 4-pinli ATX güç kaynağını kullanmak için, lütfen güç kaynağınızı Pin 1 ve Pin 5'le birlikte takın.

4-Pinli ATX 12V Güç Kaynağını Takma

SLI/XFIRE Güç Konektörü

(4-pinli SLI/XFIRE_PWR1)
(bkz. s.2 No. 43)

SLI/XFIRE_POWER1

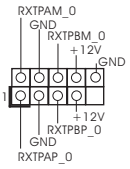
Lütfen bir SLI/XFIRE güç kaynağını bu konektöre bağlayın.

Türkçe

IEEE 1394 Fişi

(9-pinli FRONT_1394)

(bkz. s.2 No. 31)

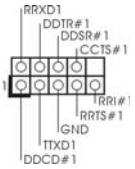


Bu anakartta G/Ç panelindeki bir varsayılan IEEE 1394 portu nun yanı sıra, bir IEEE 1394 fiş (FRONT_1394) de bulunur. Bu IEEE 1394 fişi bir IEEE 1394 portunu destekler.

Seri port Fişi

(9-pinli COM1)

(bkz. s.2 No. 33)



Bu COM1 fişi bir seri port modülünü destekler.

HDMI_SPDIF Fişi

(2-pinli HDMI_SPDIF1)

(bkz. s.2 No. 34)

HDMI_SPDIF fişi, SPDIF ses çıkışını HDMI VGA kartına sağlar, sistemin HDMI Dijital TV/projektör/LCD cihazlarını bağlamasına izin verir. Lütfen HDMI VGA kartının HDMI_SPDIF konektörünü bu fişe bağlayın.

Türkçe

1.5 Akıllı Anahtarlar

Bu anakartta üç akıllı anahtar bulunur: güç anahtarı, sıfırlama anahtarı ve CMOS'u temizleme anahtarı; bunlar kullanıcıların hızlı bir şekilde sistemi açıp kapatmalarını veya CMOS değerlerini temizlemelerini sağlar.

Güç Anahtarı (PWRBTN) (bkz. s.2 No.18)		Güç Anahtarı, kullanıcıların hızlı bir şekilde sistemi açıp kapatmalarını sağlayan akıllı bir anahtardır.
Sıfırlama Anahtarı (RSTBTN) (bkz. s.2 No.17)		Sıfırlama Anahtarı, kullanıcıların hızlı bir şekilde sistemi sıfırlamalarını sağlayan akıllı bir anahtardır.
CMOS'u Temizleme Anahtarı (CLRSBTN) (bkz. s.3 No.17)		CMOS'u Temizleme Anahtarı, kullanıcıların hızlı bir şekilde CMOS değerlerini temizlemelerini sağlayan akıllı bir anahtardır.

2. BIOS Bilgileri

Anakarttaki Flash Bellek BIOS Ayarları Yardımcı Programını içerir. Bilgisayarı başlattığınızda, lütfen Otomatik Güç Sınaması (POST) sırasında BIOS Ayarları yardımcı programına girmek için <F2> veya <Del> tuşuna basın; aksi halde, POST test rutinlerine devam eder. BIOS Ayarlarına POST'tan sonra girmek istiyorsanız, lütfen <Ctl> + <Alt> + <Delete> tuşlarına basarak veya sistem kasasındaki sıfırlama düğmesine basarak sistemi yeniden başlatın. BIOS Ayarları programı kullanıcı dostu olacak şekilde tasarlanmıştır. Çeşitli alt menüler arasında dolaşmanıza ve önceden belirlenen seçenekler arasından seçim yapmanıza izin veren menü tabanlı bir programdır. BIOS Ayarları hakkında ayrıntılı bilgi için, lütfen Destek CD'sinde bulunan Kullanıcı Kılavuzu'na (PDF dosyası) başvurun.

3. Yazılım Destek CD’si bilgileri

Bu anakart çeşitli Microsoft® Windows® işletim sistemleri destekler: 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit. Anakartla birlikte gelen Destek CD'si anakart özelliklerini genişleten gerekli sürücüleri ve kullanışlı yardımcı programları içerir. Destek CD'sini kullanmaya başlamak için, CD'yi CDROM sürücünüze takın. Bilgisayarınızda "OTOMATİK KULLAN" özelliği etkinleştirilmişse, Ana Menüyü otomatik olarak görüntüler. Ana Menü otomatik olarak görüntülenmezse, menüleri görüntülemek için Destek CD'sinin “BIN” klasöründeki "ASSETUP.EXE" dosyasını bulun ve çift tıklatın.

1. 제품소개

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본 머더보드와 관련하여 기술 지원이 필요한 경우 당사 웹 사이트를 방문하여 사용 중인 모델에 대한 특정 정보를 얻으십시오 .
www.asrock.com/support/index.asp

1.1 패키지 내용

ASRock ***Z77 WS*** 마더보드
(ATX 폼 팩터 : 12.0” x 9.6”, 30.5 x 24.4 cm)
ASRock ***Z77 WS*** 퀵 설치 가이드
ASRock ***Z77 WS*** 지원 CD
시리얼 ATA (SATA) 데이터 케이블 6 개 (선택 사양)
시리얼 ATA (SATA) HDD 전원 케이블 1 개 (선택 사양)
I/O 차폐 1 개
ASRock SLI_ 브릿지 카드 2 개
ASRock SLI_ 브릿지 _3S 카드 1 개
ASRock 3-Way SLI Bridge 카드 1 개

ASRock은사용자에게 알립니다...
Windows®7 / 7 64-비트 / Vista™ / Vista™ 64-비트의 성능을 향상시키기 위해서 Storage Configuration(스토리지 구성)에서 BIOS 옵션을 AHCI 모드로 설정하는 것이 좋습니다. BIOS 설정과 관련하여 자세한 내용은 지원 CD에 포함된 “사용 설명서” 를 참조하십시오.

1.2 설명서

플랫폼	- ATX 폼 팩터 : 12.0” x 9.6”, 30.5 x 24.4 cm - 프리미엄 골드 콘덴서디자인 (100% 일본산 고품질 정도성 고분자 콘덴서)
CPU	- LGA1155 패키지에서 3 세대 및 2 세대 Intel® Core™ i7 / i5 / i3 을 지원합니다 - Digi 전원 설계 - 8 + 4 전원 위상 디자인 - Intel® Turbo Boost 2.0 기술 지원 - K- 시리즈 잠금 해제 CPU 지원
칩셋	- Intel® Z77 - Intel® Rapid Start 기술과 Smart Connect 기술을 지원합니다
메모리	- 듀얼 채널 메모리 기술 지원 - DDR3 DIMM 슬롯 4 개 - DDR3 3000+(OC)/2400(OC)/2133(OC)/1866(OC)/1600/1333/1066 비 -ECC, 언버퍼드 메모리를 지원 - 최대 시스템 메모리 용량 : 32GB - Intel® 익스트림 메모리 프로파일 (XMP)1.3/1.2 지원
확장 슬롯	- 5 개의 PCI Express 3.0 x16 슬롯 (PCIE2: x16 모드 또는 PCIE1/PCIE3/PCIE5/PCIE7: x16/0/16/0 모드 또는 x8/8/8/8 모드) * PCIE 3.0 은 Intel® Ivy Bridge CPU 에서만 지원됩니다 . Intel® Sandy Bridge CPU 는 PCIE 2.0 만 지원합니다 . - 1 개의 PCI Express 2.0 x16 슬롯 (PCIE4: x4 모드) - 1 개의 PCI Express 2.0 x1 슬롯 - AMD Quad CrossFireX™, 4 웨이 CrossFireX™, 3 웨이 CrossFireX™ 및 CrossFireX™ 지원 - NVIDIA® Quad SLI™, 4 웨이 SLI™, 3 웨이 SLI™ 및 SLI™ 지원
온보드 VGA	* Intel® HD Graphics 내장 비주얼 및 VGA 출력은 GPU 통합된 프로세서의 경우에만 지원됩니다 . - Intel® HD 그래픽 내장 비주얼 프로그램 : Intel® Quick Sync Video 2.0, Intel® InTru™ 3D, Intel® Clear Video HD Technology, Intel® Insider™, Intel® HD Graphics 2500/4000 - Intel® Ivy Bridge CPU 를 탑재한 DirectX 11, Pixel Shader 5.0. Intel® Sandy Bridge CPU 를 탑재한 DirectX 10.1, Pixel Shader 4.1 - 최대 공유 메모리 1760MB - 최대 해상도 1920x1200 @ 60Hz 까지 HDMI 1.4a 지원 - 자동 립 싱크 (Auto Lip Sync), 딥 컬러 (Deep Color)(12bpc),

	xvYCC, HBR(고비트율 오디오), HDMI 지원 (HDMI 호환 모니터 필요) - HDMI 포트를 이용한 HDCP 기능 지원 - HDMI 포트를 이용한 1080p Blu-ray (BD) / HD-DVD 재생을 지원
오디오	- 7.1 CH HD Audio 목록 보호 (Realtek ALC898 Audio Codec) - Premium Blu-ray 오디오 지원
랜	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - 웨이크 - 온 - 랜 지원 - 절전형 이더넷 802.3az 지원 - 의 팀 기능 듀얼 LAN 지원 - PXE 지원
저장	- Intel® Z77 SATA3 6.0Gb/s 커넥터 2 개 , 하드웨어 RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage 및 Intel Smart Response 기술), NCQ, AHCI 및 “Hot Plug” (핫플러그) 기능 지원 - ASMedia ASM1061 SATA3 6.0Gb/s 커넥터 4 개 , 하드웨어 NCQ, AHCI 및 “Hot Plug” (핫플러그) 기능 지원 (SATA3_A4 커넥터는 eSATA3 포트와공유됨) - Intel® Z77 SATA2 3.0Gb/s 커넥터 4 개 , 하드웨어 RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage 및 Intel Smart Response 기술), NCQ, AHCI 및 “Hot Plug” (핫플러그) 기능 지원
후면판 I/O	I/O Panel - 1 개 PS/2 키보드 / 마우스 포트 - 1 개의 HDMI - 1 개광학 SPDIF 출력 포트 - 2 개디폴트 USB 2.0 포트 - 1 개 eSATA3 커넥터 - 8 개디폴트 USB 3.0 포트 - 2 개 LED(ACT/LINK LED 및 SPEED LED) 가 있는 RJ-45 LAN 포트 - 1 개 IEEE 1394 포트 - 1 개 LED 가 달린 CMOS 삭제 스위치 - 오디오 잭 : 후방 스피커 / 중앙 / 저음 / 라인 인 / 전방 스피커 / 마이크
USB 3.0	- Intel® Z77 에 의한 후면 패널 USB 3.0 포트 4 개 , 최고 5Gb/s 의 USB 1.0/2.0/3.0 지원 - Etron EJ188 에 의한 후면 패널 USB 3.0 포트 4 개 , 최고 5Gb/s 의 USB 1.0/2.0/3.0 지원

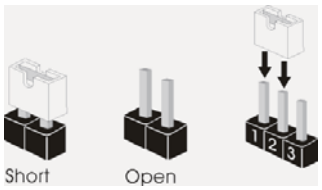
	- Etron EJ188 에 의한 전면 패널 USB 3.0 헤더 2 개 (USB 3.0 포트 4 개 지원), 최고 5Gb/s 의 USB 1.0/2.0/3.0 지원
온보드 헤더 및 커넥터	- 적외선 모듈 헤더 1 개 - 소비자용 적외선 모듈 헤더 1 개 - COM 포트 헤더 1 개 - HDMI_SPDIF 헤더 1 개 - IEEE 1394 헤더 1 개 - 전원 LED 헤더 1 개 - CPU 팬 커넥터 2 개 (4 핀 1 개 , 3 핀 1 개) - 섀시 팬 커넥터 3 개 (4 핀 1 개 , 3 핀 2 개) - 전원 팬 커넥터 1 개 (3 핀) - 24 핀 ATX 전원 헤더 - 8 핀 ATX 12V 파워 콘넥터 - SLI/XFIRE 전원 헤더 - 전면부 오디오 콘넥터 - USB 2.0 헤더 3 개 (6 개의 추가 USB 2.0 포트를 지원하는헤더 2 개) - USB 3.0 헤더 2 개 (4 개의 추가 USB 3.0 포트를 지원하는헤더 2 개) - Dr. Debug (7 세그먼트 디버그 LED) 1 개 - LED 가 달린 전원 스위치 1 개 - LED 가 달린 리셋 스위치 1 개 - LED 가 달린 CMOS 삭제 스위치 1 개
BIOS	- 64Mb GUI 지원을 제공하는 AMI UEFI 적합형 BIOS - “플러그 앤 플레이” 지원 - ACPI 1.1 웨이크 - 업 이벤트와의 호환 - 점퍼 프리 지원 - SMBIOS 2.3.1 지원 - CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA 전압 멀티 조절
지원 CD	- 드라이버 , 유틸리티 , 백신 소프트웨어 (시험판), CyberLink MediaEspresso 6.5 평가판 , ASRock MAGIX Multimedia Suite - OEM
하드웨어 모니터	- CPU 온도 감지 - 마더보드 온도 감지 - CPU/ 섀시 / 전원 팬 회전 속도계 : 샤시 (케이스) 팬 회전 속도계 - CPU/ 섀시 저소음 팬 (CPU 온도에 의한 섀시 팬속도 자동 조정 가능) - CPU/ 섀시 팬 멀티스피드 컨트롤 - 전압 감시 기능 : +12V,+5V,+3.3V,Vcore

OS	- 마이크로 소프트 Windows® 7/7 64 비트 /Vista™/Vista™ 64 비트 / XP/XP 64 비트 와 호환
인증서	- FCC, CE, WHQL - ErP/EuP 지원 (ErP/EuP 지원 전원 공급기가 요구됨)

* 상세한 제품정보는 당사의 웹사이트를 방문할수있습니다 . http://www.asrock.com

1.3 점퍼 셋팅

그림은 점퍼를 어떻게 셋업 하는지를 보여줍니다 . 점퍼 캡이 핀 위에 있을 때 , 점퍼는 " 쇼트 " 입니다 . 점퍼 캡이 핀 위에 없을 때 점퍼는 " 오픈 " 입니다 . 그림은 3 개의 핀 중 1-2 번 핀이 " 쇼트 " 임을 보여주는 것이며 , 점퍼 캡이 이 두 핀 위에 있음을 보여주는 것입니다 .



점퍼	세팅
CMOS 초기화 (CLRCMOS1, 3 핀 점퍼) (2 페이지 , 22 번 항목 참조)	1_2 기본 설정 2_3 CMOS 삭제

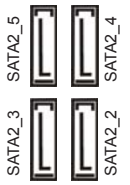
참고 : CLRCMOS1 을 사용하여 CMOS 에 들어 있는 데이터를 삭제할 수 있습니다 . 시스템 매개변수를 삭제하고 기본 설정으로 복원하려면 , 컴퓨터를 끄고 전원 공급장치에서 플러그를 뽑으십시오 . 15 초를 기다린 다음 점퍼 캡을 사용하여 CLRCMOS1 의 핀 2 와 핀 3 을 5 초 동안 단락하십시오 . 그러나 BIOS 업데이트 직후에는 CMOS 를 삭제하지 마십시오 . BIOS 를 업데이트하자마자 CMOS 를 삭제해야 하는 경우 먼저 시스템을 부팅하고 CMOS 를 종료하고 삭제 작업을 해야 합니다 . CMOS 배터리를 제거할 경우에만 암호 , 날짜 , 시간 , 사용자 기본 프로파일 , 1394 GUID, MAC 주소가 삭제됩니다 .

Clear CMOS Switch는 Clear CMOS 점퍼와 동일한 기능을 갖고 있습니다.

1.4 온보드 헤더 및 커넥터

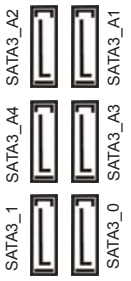
주의 !
이 콘넥터는 점퍼가 아닙니다 . 이 콘넥터 위에 점퍼 캡을 사용하지 마세요 . 커넥터에 점퍼 캡을 설치하면 마더보드가 영구적으로 손상됩니다 !

시리얼 ATA2 커넥터
(SATA2_2_3:
2 페이지 , 15 번 항목 참조)
(SATA2_4_5:
2 페이지 , 16 번 항목 참조)



4 개의 시리얼 ATA2 (SATA) 커넥터는 내부 저장 장치용 SATA 데이터 케이블을 지원합니다 . 커넥터가 내부 기억 장치용 SATA 케이블을지원합니다 . 현재의 SATA2 인터페이스는 최고 3.0 Gb/s 의 데이터 전송 속도를 지원합니다 .

시리얼 ATA3 커넥터
(SATA3_A1_A2:
2 페이지 , 12 번 항목 참조)
(SATA3_A3_A4:
2 페이지 , 13 번 항목 참조)
(SATA3_0_1:
2 페이지 , 14 번 항목 참조)



6 개의 시리얼 ATA3 (SATA3) 커넥터는 내부 저장 장치용 SATA 데이터 케이블을지원합니다 . 커넥터가 내부 기억 장치용 SATA 케이블을 지원합니다 . 현재의 SATA3 인터페이스는 최고 6.0 Gb/s 의 데이터 전송 속도를 지원합니다 . 뒷면 I/O 에 있는 eSATA3 포트 에 HDD 를 설치할 경우 내부 SATA3_A4 는 작동하지 않습니다 .

시리얼 ATA(SATA) 데이터 케이블
(선택 사양)

SATA 데이터 케이블의 임의적인 측을 마더보드의 SATA / SATA2 / SATA3 하드 디스크 혹은 SATA2 / SATA3 커넥터에 연결합니다 .

시리얼 ATA(SATA) 전원 케이블
(선택 사양)

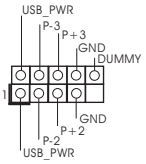
SATA 전원 케이블의 검은 색끝 부분을 드라이브의 전원 커넥터에 연결하십시오 . 그 다음에 SATA 전원 케이블의 흰색 끝을 전원 공급장치의 전원 커넥터에 연결합니다 .

한국어

USB 2.0 헤더

(9 핀 USB2_3)

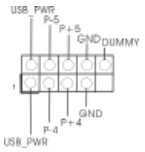
(2 페이지 , 25 번 항목 참조)



본 머더보드에는 I/O 패널에 있는 2 개의 기본 USB 2.0 포트외에도 USB 2.0 헤더가 3 개 있습니다 . 각각의 USB 2.0 헤더는 2 개의 USB 2.0 포트를 지원할 수 있습니다 .

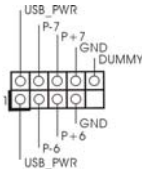
(9 핀 USB4_5)

(2 페이지 , 26 번 항목 참조)



(9 핀 USB6_7)

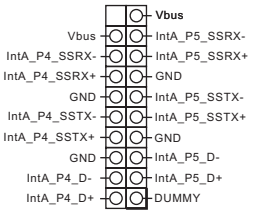
(2 페이지 , 27 번 항목 참조)



USB 3.0 헤더

(19 핀 USB3_9_10)

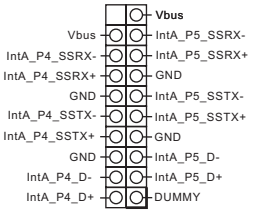
(2 페이지 , 10 번 항목 참조)



I/O 패널에 있는 8 개의 기본적 USB 3.0 포트 이외에도 마더보드에 2 개의 USB 3.0 헤더가 있습니다 . 이 USB 3.0 헤더는 2 개의 USB 3.0 포트를 지원할 수 있습니다 .

(19 핀 USB3_11_12)

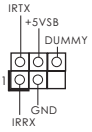
(2 페이지 , 9 번 항목 참조)



적외선 모듈 헤더

(5 핀 IR1)

(2 페이지 , 32 번 항목 참조)

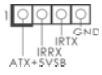


이 헤더는 선택품목인 무선 적외선 송수신 모듈을 지원합니다 .

소비자용 적외선 모듈 헤더

(4 핀 CIR1)

(2 페이지 , 28 번 항목 참조)



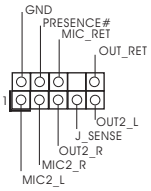
이 헤더는 리모콘 수신기 연결하는 데 사용될 수 있습니다 .

한국어

전면부 오디오 콘넥터

(9 핀 HD_AUDIO1)

(2 페이지 , 35 번 항목 참조)



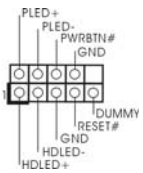
이 콘넥터는 오디오 장치를 하게 조절하고 연결할 수 있는 전면 오디오 인터페이스 입니다 .

1. High Definition Audio(고음질 오디오) 는 잭 센스 기능을 지원하나 , 제대로작동하려 면 섀시의 패널 와이어가 HAD 를 지원해야 합니다 . 이 설명서 및 섀시 설명서의지침 을 따라 시스템을 설치하십시오 .
2. AC’ 97 오디오 패널을 사용하는 경우 , 이를 아래와 같이 프런트 패널의 오디오헤 더에 설치하십시 오 .
   - A. Mic_IN (MIC) 을 MIC2_L 에 연결합니다 .
   - B. Audio_R (RIN) 을 OUT2_R 에 연결하고 , Audio_L (LIN) 을 OUT2_L 에 연결합 니다 .
   - C. Ground (GND) 을 Ground (GND) 에 연결합니다 .
   - D. MIC_RET 및 OUT_RET 는 HD 오디오 패널 전용입니다 . 이들을 AC’ 97 오디오 패널에 연결 하지 않아도 됩니다 .
   - E. 앞면 마이크 작동 .
     Windows® XP / XP 64 비트 OS 의 경우 :
     “Mixer” (믹서) 와 “Recorder” (리코더) 를 선택한 후 “Front Mic” (앞면 마이크) 를 선택합니다 .
     Windows® 7 / 7 64 비트 / Vista™ / Vista™ 64 비트 OS 의 경우 :
     Realtek 제어판에서 “FrontMic” (앞면 마이크) 로 가서 “Recording Volume” (리코딩 볼륨) 을 조정합니다 .

시스템 콘넥터

(9 핀 PANEL1)

(2 페이지 , 20 번 항목 참조)



이 콘넥터는 시스템 전면 패널기능을 지원하기 위한 것입니다 .

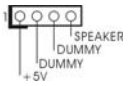
섀시의 전원 스위치 , 리셋 스위치 , 시스템 상태 표시등을 아래의 핀 할당에 따라 이헤더에 연결합니다 . 케이블을 연결하기 전에 양극 핀과 음극 핀을 기록합니다 .

PWRBTN(전원 스위치):
섀시 전면 패널의 전원 스위치에 연결합니다 . 전원 스위치를 이용해 시스템을 끄는방법을 구성할 수 있습니다 .
RESET(리셋 스위치):
섀시 전면 패널의 리셋 스위치에 연결합니다 . 컴퓨터가 정지하고 정상적 재시작을수행하지 못할 경우 리셋 스위치를 눌러 컴퓨터를 재시작합니다 .

PLED(시스템 전원 LED):
섀시 전면 패널의 전원 상태 표시등에 연결합니다 . 시스템이 작동하고 있을 때는 LED 가 켜져 있습니다 . 시스템이 S1/S3 대기 상태에 있을 때는 LED 가 계속 깜박입니다 . 시스템이 S4 대기 상태 또는 전원 꺼짐 (S5) 상태에 있을 때는 LED 가 꺼져 있습니다 .
HDLED(하드 드라이브 동작 LED):
섀시 전면 패널의 하드 드라이브 동작 LED 에 연결합니다 . 하드 드라이브가 데이터를 읽거나 쓰고 있을 때 LED 가 켜져 있습니다 .

전면 패널 디자인은 섀시별로 다를 수 있습니다 . 전면 패널 모듈은 주로 전원 스위치 , 리셋 스위치 , 전원 LED, 하드 드라이브 동작 LED, 스피커 등으로 구성되어 있습니다 . 섀시 전면 패널 모듈을 이 헤더에 연결할 때 와이어 할당과 핀 할당이 정확히 일치하는지 확인합니다 .

섀시 스피커 헤더
(4 핀 SPEAKER 1)
(2 페이지 , 21 번 항목 참조)

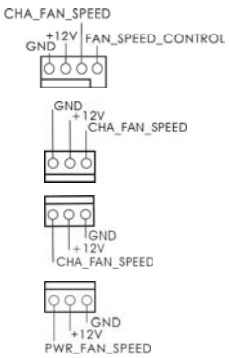


섀시 스피커를 이 헤더에 연결하십시오 .

전원 LED 헤더
(3 핀 PLED1)
(2 페이지 , 19 번 항목 참조)

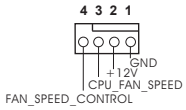
시스템 전원 상태를 표시하려면 섀시 전원 LED 를 헤더에 연결하십시오 . 시스템 작동 중에는 LED 에 전원이 켜져 있습니다 . S1/S3 상태에서는 LED 가 계속 깜박입니다 . S3/S4 상태 또는 S5 상태에서는 LED 가 꺼집니다 (전원 꺼짐).

섀시 / 전원 팬 커넥터
(4 핀 CHA_FAN1)
(2 페이지 , 30 번 항목 참조)
(3 핀 CHA_FAN2)
(2 페이지 , 29 번 항목 참조)
(3 핀 CHA_FAN3)
(2 페이지 , 44 번 항목 참조)
(3 핀 PWR_FAN1)
(2 페이지 , 3 번 항목 참조)



팬 케이블을 팬 커넥터에 연결하고 접지 핀에는 검은색 전선을 연결하십시오 . CHA_FAN1, CHA_FAN2 및 CHA_FAN3 은 팬 제어를 지원합니다 .

CPU 팬 커넥터
(4 핀 CPU_FAN1)
(2 페이지 , 4 번 항목 참조)



CPU 팬 케이블을 이 커넥터에 연결하고 흑색 선을 접지 핀에맞추십시오 .

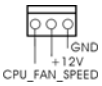
한국어

본 머더보드가 4 핀 CPU 팬 (저소음 팬) 지원을 제공하기는 하지만 팬 속도 제어기능없이도 3 핀 CPU 팬을 성공적으로 작동할 수 있습니다 . 본 머더보드의 CPU 팬 커넥터에 3 핀 CPU 팬을 연결하려면 1-3 번 핀에 연결하십시오 .

1-3 번 핀에 연결됨

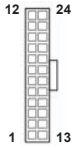
3 핀 팬 설치

(3 핀 CPU_FAN2)
(2 페이지 , 5 번 항목 참조)



ATX 전원 헤더

(24 핀 ATXPWR1)
(2 페이지 , 8 번 항목 참조)



ATX 전원 공급기를 이 헤더에 연결하십시오 .

이 마더보드는 24 핀 ATX 전원 커넥터를 제공하지만 , 종래의 20 핀 ATX 전원 공급장치를 사용해도 작동이 가능합니다 . 20 핀 ATX 전원 공급장치를 사용하려면 , Pin 1 과 Pin 13 으로 전원공급장치를 연결하십시오 .

20 핀 ATX 전원 공급장치 설치

ATX 12V 파워 콘넥터

(8 핀 ATX12V1)
(2 페이지 , 1 번 항목 참조)

ATX 12V 플러그가 달린 전원 공급장치를 이 커넥터에연결해야 충분한 전력을 공급할 수 있습니다 . 그러지 않을 경우 전원을 켤 수 없습니다 .

비록 본 마더보드는 8- 핀 ATX 12V 전원 연결기를 제공하지만 이것은 여전히작업할수있습니다 . 만약 전통적인 4- 핀 ATX 12V 전원공급을 채용하여 4- 핀 ATX 전력을 사용하는경우 , 반드시 전원 공급을 핀 1 과 핀 5 에전원공급을 삽입해야합니다 .

4- 핀 ATX 12V 전원공급장치

SLI/XFIRE 전원 커넥터

(4 핀 SLI/XFIRE_POWER1)
(2 페이지 , 43 번 항목 참조)

SLI/XFIRE_POWER1

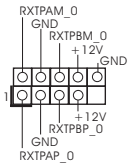
이 커넥터를 사용하지 않아도 되나 , 2 개의그래픽카드를 이 마더보드에 동시에연결하는 경우에는이커넥터를 하드 디스크 전원 커넥터에 연결하십시오 .

한국어

IEEE 1394 헤더

(9 핀 FRONT_1394)

(2 페이지 , 31 번 항목 참조)

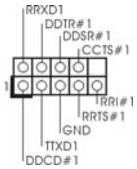


이본 머더보드에는 I/O 패널에 있는 1 개의 기본 IEEE 1394 포트외에도 IEEE 1394 (FRONT_1394) 헤더가 1 개 있습니다 . 각각의 IEEE 1394 헤더는 1 개의 IEEE 1394 포트를 지원할 수 있습니다 .

시리얼포트 컨넥터

(9 핀 COM1)

(2 페이지 , 33 번 항목 참조)



이 콘넥터는 시리얼 포트 모듈을 지원합니다 .

HDMI_SPDIF 헤더

(2 핀 HDMI_SPDIF1)

(2 페이지 , 34 번 항목 참조)

HDMI VGA 카드에 SPDIF 오디오 출력을 제공하는 HDMI_SPDIF 헤더는 시스템이 HDMI 디지털 TV/ 프로젝터 / LCD 장치에 연결할 수 있게 합니다 . HDMI VGA 카드의 HDMI_SPDIF 커넥터를 이 헤더에 연결하십시오 .

한국어

1.5 빠른 스위치

이 메인보드에는 세 개의 빠른 스위치 , 즉 전원 스위치 , 리셋 스위치 및 CMOS 삭제 스위치가 있어 , 사용자가 빠르게 시스템을 켜고 끄거나 리셋하고 CMOS 값을 삭제할 수 있습니다 .

전원 스위치 (PWRBTN) (2 페이지 , 18 번 항목 참조)		전원 스위치는 빠른 스위치로서 , 사용자가 시스템을 빠르게 켜거나 끌 수 있습니다 .
리셋 스위치 (RSTBTN) (2 페이지 , 17 번 항목 참조)		리셋 스위치는 빠른 스위치로서 , 사용자가 시스템을 빠르게 리셋할 수 있습니다 .
CMOS 삭제 스위치 (CLRCBTN) (3 페이지 , 17 번 항목 참조)		CMOS 삭제 스위치는 빠른 스위치로서 , 사용자가 CMOS 값을 빠르게 삭제할 수 있습니다 .

한국어

2. 시스템 바이오스 정보

메인보드의 플래쉬 메모리에는 바이오스 셋업 유틸리티가 저장되어 있습니다 . 컴퓨터를 사용하실 때 , “자가진단 테스트” (POST) 가 실시되는 동안 <F2> 또는 <Del> 키를 눌러 바이오스 셋업으로 들어가세요 ; 만일 그렇게 하지 않으면 POST 는 테스트 루틴을 계속하여 실행할 것입니다 . 만일 POST 이후 바이오스 셋업을 하기 원하신다면 ,<Ctl>+<Alt>+<Delete> 키를 누르거나 , 또는 시스템 본체의 리셋 버튼을 눌러 시스템을 재 시작하여 주시기 바랍니다 . 바이오스 셋업 프로그램은 사용하기 편하도록 디자인되어 있습니다 . 각 항목은 다양한 서브 메뉴 표가 올라오며 미리 정해진 값 중에서 선택할 수 있도록 되어 있습니다 . 바이오스 셋업에 대한 보다 상세한 정보를 원하신다면 보조 CD 안의 포함된 사용자 매뉴얼 (PDF 파일) 을 따라 주시기 바랍니다 .

3. 소프트웨어 지원 CD 정보

이 메인보드는 여러 가지 마이크로소프트 윈도우 운영 체계를 지원합니다 : 7/7 64 비트 /Vista™/Vista™ 64 비트 /XP/XP 64 비트 . 메인보드에 필요한 드라이버와 사용자 편의를 위해 제공되는 보조 CD 는 메인보드 의 기능을 향상시켜 줄 것입니다 . 보조 CD 를 사용하여 시작하시려면 , CD-ROM 드라이브에 CD 를 넣어주시기 바랍니다 . 만일 고객님의 컴퓨터가 “AUTORUN” 이 가능하다면 자동으로 메인 메뉴를 모니터에 디스플레이 시켜 줄 것입니다 . 만일 자동으로 메인 메뉴가 나타나지 않는다면 , 보조 CD 의 디스플레이 메뉴 안에 있는 BIN 폴더 ASSETUP.EXE 파일을 더블 클릭하여 주시기 바랍니다 .
(D: \ BIN \ ASSETUP.EXE, D: 는 CD-ROM 드라이브)

1. はじめに

ASRock ***Z77 WS*** マザーボードをお買い上げいただきありがとうございます。本製品は、弊社の厳しい品質管理の下で製作されたマザーボードです。本製品は、弊社の品質と耐久性の両立という目標に適合した堅牢な設計により優れた性能を実現します。このクイックインストレーションガイドには、マザーボードの説明および段階的に説明したインストレーションの手引きが含まれています。マザーボードに関するさらに詳しい情報は、「サポートCD」のユーザーマニュアルを参照してください。

マザーボードの仕様および BIOS ソフトウェアは、アップデートされることが有りますので、マニュアルの内容は、予告なしに変更されることがあります。本マニュアルに変更が有った場合は、弊社のウェブサイトに通告なしに最新版のマニュアルが掲載されます。最新の VGA カードおよび CPU サポートリストもウェブサイトでご覧になれます。ASRock 社ウェブサイト:http://www.asrock.com
このマザーボードに関連する技術サポートが必要な場合、当社の Web サイトにアクセスし、使用しているモデルについての特定情報を見つけてください。
www.asrock.com/support/index.asp

1.1 パッケージ内容

ASRock ***Z77 WS*** マザーボード:
(ATX フォームファクター：12.0-in x 9.6-in, 30.5 cm x 24.4 cm)
ASRock ***Z77 WS*** クイックインストレーションガイド
ASRock ***Z77 WS*** サポート CD
6 x シリアル ATA (SATA) データケーブル(オプション)
1 x シリアル 1 ATA (SATA) HDD 用電源変換ケーブル(オプション)
1 x I/O パネルシールド
2 x ASRock SLI_Bridge カード
1 x ASRock SLI_Bridge_3S カード
1 x ASRock 3-Way SLI Bridge カード

ASRockからのお知らせ...
Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit でより良い性能を得るには、ストレージ構成のBIOSオプションをAHCIモードに設定することを推奨します。 BIOSのセットアップについての詳細は、サポートCDの「ユーザーマニュアル」を参照してください。

日本語

1.2 仕様

プラットフォーム	- ATX フォームファクター： 12.0-in x 9.6-in, 30.5 cm x 24.4 cm - プレミアムゴールド固体コンデンサ設計 (日本製高品質 100% 導電性高分子コンデンサ)
CPU	- LGA1155 パッケージで、第三世代および第二世代 Intel® Core™ i7 / i5 / i3 をサポートします - デジタル電源設計 - 8 + 4 電源位相設計 - Intel® Turbo 2.0 ブーストテクノロジをサポート - K シリーズのアンロック CPU
エップセット	- Intel® Z77 - Intel® Rapid Start テクノロジおよび Smart Connect テクノロジをサポートします
メモリー	- デュアルチャネル DDR3 メモリ技術 - DDR3 DIMM スロット x 4 - DDR3 3000+(OC)/2400(OC)/2133(OC)/1866(OC)/1600/1333/1066 non-ECC, un-buffered メモリーに対応 - システムメモリの最大容量：32GB - Intel® Extreme Memory Profile (XMP)1.3/1.2 をサポート
拡張スロット	- 5 x PCI Express 3.0 x16 スロット (PCIE2: x16 モードまたは PCIE1/PCIE3/PCIE5/PCIE7: x16/0/16/0 モードまたは x8/8/8/8 モード) * PCIE 3.0 は、Intel® Ivy Bridge CPU でのみサポートされます。Intel® Sandy Bridge CPU では、PCIE 2.0 のみをサポートします。 - 1 x PCI Express 2.0 x16 スロット (PCIE4: x4 モード) - 1 x PCI Express 2.0 x1 スロット - AMD Quad CrossFireX™、4-Way CrossFireX™、3-Way CrossFireX™ および CrossFireX™ をサポート - NVIDIA® Quad SLI™、4-Way SLI™、3-Way SLI™ および SLI™ をサポート
グラフィック	* Intel® HD Graphics Built-in Visuals および VGA 出力に対応するのは、GPU が内蔵されているプロセッサを使用する場合だけです。 - Intel® HD グラフィックス内蔵ビジュアルのサポート :Intel® Quick Sync Video 2.0、Intel® InTru™ 3D、Intel® Clear Video HD Technology、Intel® Insider™、Intel® HD Graphics 2500/4000

	- Intel® Ivy Bridge CPU を搭載した DirectX 11、Pixel Shader 5.0。Intel® Sandy Bridge CPU を搭載した DirectX 10.1、Pixel Shader 4.1。 - 最大の共有メモリ 1760MB - 1920x1200 @ 60Hz の最大解像度で HDMI 1.4a をサポート - オート・リップシンク、ディープカラー(12bpc)、xvYCC、HBR(High Bit Rate)オーディオ、HDMI (HDMI 準拠モニタが必要)をサポート - HDCP 機能、HDMI ポートをサポート - 1080p Blu-ray (BD) / HD-DVD 再生サポート、HDMI ポートをサポート
オーディオ	- 7.1 CH HD オーディオ (コンテンツ保護付) (Realtek ALC898 オーディオ Codec) - Premium Blu-ray オーディオのサポー
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - Wake-On-LAN をサポート - Energy Efficient Ethernet 802.3az をサポート - チーミング機能によるデュアル LAN をサポートします - PXE をサポート
ストレージ	- Intel® Z77 SATA3 6.0Gb/ 秒 コネクタ x 2 ハードウェア RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage および Intel Smart Response 技術) をサポート , NCQ, AHCI および "Hot Plug" (ホットプラグ) 機能 - ASMedia ASM1061 SATA3 6.0Gb/ 秒 コネクタ x 4 ハードウェアをサポート , NCQ, AHCI および "Hot Plug" (ホットプラグ) 機能 (SATA3_A4 コネクタは eSATA3 ポートと共有) - Intel® Z77 SATA2 3.0Gb/ 秒 コネクタ x 4 ハードウェア RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage および Intel Smart Response 技術) をサポート , NCQ, AHCI および "Hot Plug" (ホットプラグ) 機能
リアパネル I/O	I/O Panel - PS/2 キーボード / マウスポート x 1 - HDMI ポート x 1 - 光学 SPDIF 出力ポート x 1 - Ready-to-Use USB 2.0 ポート x 2 - eSATA3 コネクタ x 1 - Ready-to-Use USB 3.0 ポート x 8 - LED(ACT/LINK LED および SPEED LED)付き RJ-45 LAN ポート x 2 - IEEE 1394 ポート x 1 - クリア CMOS スイッチ(LED 付き)x 1

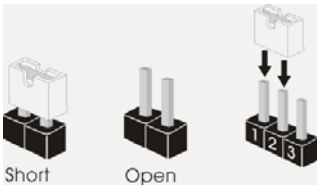
	- オーディオジャック: 後部スピーカー、中央、低音、入力、前部スピーカー、マイク入力
USB 3.0	- 4 x リア USB 3.0 ポート (Intel® Z77)、USB 1.0/2.0/3.0 に最高 5Gb/s まで対応 - 4 x リア USB 3.0 ポート (Etron EJ188)、USB 1.0/2.0/3.0 に最高 5Gb/s まで対応 - 2 x フロント USB 3.0 ヘッダ (USB 3.0 ポート 4 基対応) (Etron EJ188)、USB 1.0/2.0/3.0 に最高 5Gb/s まで対応
コネクター	- IR ヘッダー x 1 - コンシューマー赤外線モジュールヘッダー x 1 - COM ポートヘッダ x 1 - HDMI_SPDIF ヘッダー x 1 - IEEE 1394 ヘッダー x 1 - 電源 LED ヘッダー x 1 - CPU ファンコネクタ x 2 (4 ピン x 1、3 ピン x 1) - シャーシファンコネクタ x 3 (4 ピン x 1、3 ピン x 2) - 電源ファンコネクタ x 1 (3 ピン) - 24 ピン ATX 電源コネクター - 8 ピン 12V 電源コネクター - SLI/XFIRE 電源コネクター - フロントパネルオーディオコネクター - USB 2.0 ヘッダー (USB 2.0 用 4 ポートをサポート) x 2 - USB 3.0 ヘッダー (USB 3.0 用 2 ポートをサポート) x 1 - 1 x Dr. Debug (7- セグメント Debug LED) - 1 x 電源スイッチ(LED 付き) - 1 x リセットスイッエ(LED 付き) - 1 x クリア CMOS スイッエ(LED 付き)
BIOS 関連機能	- 64Mb AMI UEFI Legal BIOS(GUI サポート) - プラグ&プレイをサポート - ACPI 1.1 準拠ウェイクアップイベント - jumperfree モードサポート - SMBIOS 2.3.1 サポート - CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA 電圧のマルチ調整
サポート CD	- ドライバ、ユーティリティ、AntiVirus ソフトウェア (試用バージョン)、CyberLink MediaEspresso 6.5 試用版、ASRock MAGIX Multimedia Suite - OEM
モニター	- CPU 温度検知 - マザーボード温度検知 - CPU/ シャーシ / 電源ファンタコメータ - CPU/ シャーシ静音ファン(CPU 温度によりシャーシファン速度の自動調整が可能)

	- CPU/ シャーシファンマルチ速度制御 - 電源モニター：+12V, +5V, +3.3V, Vcore
OS	- Microsoft® Windows®7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit compliant
認証	- FCC, CE, Microsoft® WHQL 認証済み - ErP/EuP 対応(ErP/EuP 対応の電源装置が必要です)

＊ 製品の詳細については、http://www.asrock.com を御覧なさい。

1.3 ジャンパ設定

右の図はジャンパがどのように設定されているかを示します。ジャンパキャップがピンに置かれている場合、ジャンパは “ショート” になります。ジャンパキャップがピンに置かれていない場合、ジャンパ は “オープン”になります。右の図で、3ピンジャンパで、1-2 ピンを “ショート”の場合、これらの2つのピンにジャンパキャップを置きます。



ジャンパ	設定	説明
CMOS の消去ジャンパ (CLRCMOS1) (ページ 2 アイテム 22 参照)	1_2 デフォルト設定	2_3 CMOS の消去

注： CLRCMOS1 により、CMOS のデータをクリアできます。システムパラメータをクリアしデフォルト設定にリセットするには、コンピュータの電源をオフにし、電源装置から電源コードを抜いてください。15 秒待ってから、ジャンパキャップを使用して CLRCMOS1 のピン 2 とピン 3 を 5 秒間ショートしてください。ただし、BIOS 更新の後すぐには CMOS をクリアしないでください。BIOS の更新の終了後直ちに CMOS をクリアする必要がある場合、まずシステムを起動してからシャットダウンし、その後クリア CMOS アクションを実行する必要があります。パスワード、日付、時刻、ユーザーデフォルトのプロファイルを忘れずにメモしてください。1394 GUID と MAC アドレスは、CMOS バッテリを取り外した場合のみ消去されます。

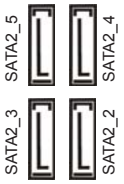
クリアCMOSスイッチには、クリアCMOSジャンパと同じ機能があります。

日本語

1.4　オンボードのヘッダとコネクタ類。

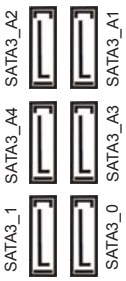
オンボードのヘッダとコネクタ類はジャンパではありません。それらのヘッダやコネクタにジャンパキャップをかぶせないでください。ヘッダやコネクタにジャンパキャップをかぶせると、マザーボードに深刻な影響を与える場合があります。

シリアル ATA2 コネクタ
SATA2_2_3:
ページ 2, アイテム 15 を参照
SATA2_4_5:
ページ 2, アイテム 16 を参照



これら 4 本のシリアル ATA2 (SATA2) コネクタは内蔵ストレーデバイスに使用する SATA データケーブルに対応しています。現在の SATA2 インタフェースの最大データ転送速度は 3.0Gb/s です。

シリアル ATA3 コネクタ
SATA3_A1_A2:
ページ 2, アイテム 12 を参照
SATA3_A3_A4:
ページ 2, アイテム 13 を参照
SATA3_0_1:
ページ 2, アイテム 14 を参照



これら 6 本のシリアル ATA3 (SATA3) コネクタは内蔵ストレーデバイスに使用する SATA データケーブルに対応しています。現在の SATA3 インタフェースの最大データ転送速度は 6.0Gb/s です。背面 I/O の eSATA3 ポートに HDD を取り付ける場合、内部 SATA3_A4 は機能しません。

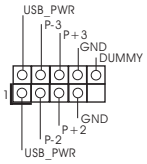
シリアル ATA(SATA)
データケーブル(オプション)

SATA データケーブルのどちらかの端をマザーボードの SATA / SATA2 / SATA3 ハードディスク、または SATA2 / SATA3 コネクタに接続できます。

シリアル ATA(SATA)
電源ケーブル(オプション)

SATA 電源ケーブルの黒端を各ドライブの電源コネクタに接続し、白端をパワーサプライの電源コネクタに接続してください。

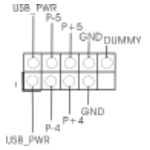
USB 2.0 ヘッダ
(9 ピン USB2_3)
ページ 2, アイテム 25 を参照



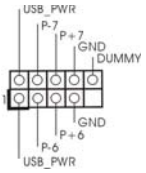
I/O パネルには、デフォルトの 2 つの USB 2.0 ポート以外に、このマザーボードに 3 つの USB 2.0 ヘッダが搭載されています。それぞれの USB 2.0 ヘッダは 2 つの USB 2.0 ポートをサポートできます。

日本語

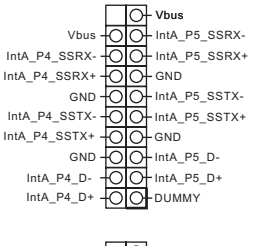
(9 ピン USB4_5)
ページ 2，アイテム 26 を参照



(9 ピン USB6_7)
ページ 2，アイテム 27 を参照

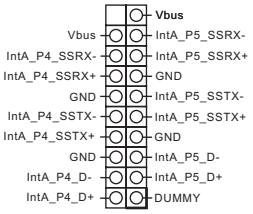


USB 3.0 ヘッダ
(19 ピン USB3_9_10)
ページ 2，アイテム 10 を参照

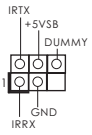


I/O パネルには、デフォルトの 8 つの USB 3.0 ポート以外に、このマザーボードに 2 つの USB 3.0 ヘッダが搭載されています。それぞれの USB 3.0 ヘッダは 2 つの USB 2.0 ポートをサポートできます。

(19 ピン USB3_11_12)
ページ 2，アイテム 9 を参照

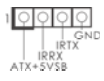


赤外線モジュールコネクタ
(5 ピン IR1)
ページ 2，アイテム 32 を参照



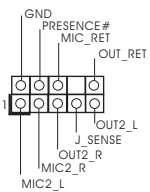
このコネクタは赤外線の無線送受信モジュールに対応します。

コンシューマー赤外線モジュールヘッダー
(4 ピン CIR1)
ページ2，アイテム 28 を参照



このヘッダーは、リモコン受光部の接続に使用することができます。

フロントオーディオパネルコネクタ
(9 ピン HD_AUDIO1)
ページ 2，アイテム 35 を参照

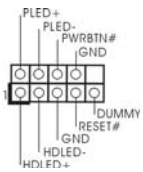


このコネクタは、オーディオ機器との便利な接続とコントロールを可能にするフロンとオーディオパネルのためのインターフェイスです。

日本語

1. ハイディフィニションオーディオはジャックセンシングをサポートしますが、正しく機能するためにシャーシのパネルワイヤが HDA をサポートする必要があります。このマニュアルとシャーシのマニュアルの指示に従って、システムを取り付けてください。
2. AC'97 オーディオパネルを使用する場合、次のように前面パネルのオーディオヘッダに取り付けてください。
   - A. Mic_IN (MIC) を MIC2_L に接続します。
   - B. Audio_R (RIN) を OUT2_R に、Audio_L (LIN) を OUT2_L に接続します。
   - C. Ground (GND) を Ground (GND) に接続します。
   - D. MIC_RET と OUT_RET はオーディオパネル専用です。AC'97 オーディオパネルに接続する必要はありません。
   - E. フロントマイクを有効化するには。
     Windows® XP / XP 64-bit OS の場合：
     "Mixer"（ミキサー）を選択し、続いて "Recorder"（レコーダー）を選択します。その後 "FrontMic"（フロントマイク）をクリックします。
     Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS の場合：
     Realtek コントロールパネルから "FrontMic"（フロントマイク）タブを開きます。"Recording Volume"（録音音量）を調整します。

システムパネルコネクタ
(9 ピン PANEL1)
ページ 2，アイテム 20 を参照



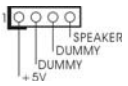
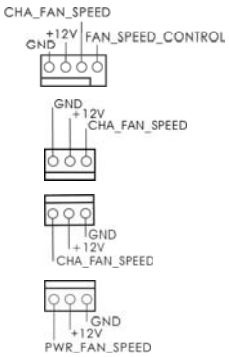
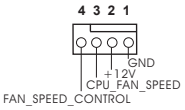
このコネクタは数種類のシステムフロントパネルの機能を提供します。

シャーシに付いている電源スイッチ、リセットスイッチ、システムステータスインジケータを下記のピン割り当て指示に従ってこのヘッダに接続します。ケーブルを接続する前にピンの正負極性にご注意ください。

PWRBTN（電源スイッチ）:
前面パネルに付いている電源スイッチに接続します。電源スイッチによるシステム電源オフ方法を設定して変更することも可能です。
RESET（リセットスイッエ）:
シャーシの前面パネルに付いているリセットスイッチに接続します。コンピュータがフリーズし、正常な再起動をしない場合は、リセットスイッチを押してコンピュータを再起動します。
PLED（システム電源 LED):
シャーシの前面パネルに付いている電源ステータスインジケータに接続します。LED は、システムが動作しているときに点灯します。LED はシステムが S1/S3 スリープ状態のときに点滅します。システムが S4 スリープ状態になるか、電源オフ (S5) になると、LED は消灯します。

HDLED（ハードドライブアクティビティ LED):
シャーシの前面パネルに付いているハードドライブアクティビティ LED に接続します。LED は、ハードドライブがデータの読み込みまたは書き込み動作をしているときに点灯します。

前面パネルのデザインはシャーシによって異なります。前面パネルモジュールは、主に電源スイッチ、リセットスイッチ、電源 LED、ハードドライブアクティビティ LED、スピーカーなどから構成されています。シャーシの前面パネルモジュールをこのヘッダに接続する際は、ワイヤとピンの割り当てが正しく対応していることを確認してください。

シャーシスピーカーヘッダ (4 ピン SPEAKER1) ページ 2，アイテム 21 を参照		シャーシのスピーカーとこのヘッダを接続してください。
電源 LED ヘッダー (3 ピン PLED1) ページ 2，アイテム 19 を参照		シャーシ電源 LED をこのヘッダーに接続し、システム電源ステータスを示すようにしてください。LED はシステムが動作中の際にオンになります。S1 ステータスでは LED は点滅し続けます。S3/S4 ステータス、または S5 ステータス（電源オフ）の場合、LED は消灯します。
シャーシおよび電源ファンコネクタ (4 ピン CHA_FAN1) ページ 2，アイテム 30 を参照 (3 ピン CHA_FAN2) ページ 2，アイテム 29 を参照 (3 ピン CHA_FAN3) ページ 2，アイテム 44 を参照 (3 ピン PWR_FAN1) ページ 2，アイテム 3 を参照		ファンケーブルをファンコネクタに接続し、黒いワイヤをアースピンに合わせてください。CHA_FAN1、CHA_FAN2 および CHA_FAN3 は、ファンコントロールをサポートします。
CPU ファンコネクタ (4 ピン CPU_FAN1) ページ 2，アイテム 4 を参照		このコネクタには CPU ファケーブルを接続します。黒いコードはアースピンに接続してください。

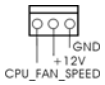
日本語

このマザーボードでは 4 ピン CPU ファン (クワイエットファン) がサポートされていますが、ファン速度コントロール機能がない場合でも、3 ピン CPU ファンは正常に作動します。3 ピン CPU ファンをこのマザーボードの CPU ファンコネクタに接続しようとしている場合、ピン 1-3 に接続してください。

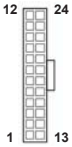
接続されたピン 1-3

3 ピンファンのインストール

(3 ピン CPU_FAN2)
ページ 2, アイテム 5 を参照



ATX パワーコネクタ
(24 ピン ATXPWR1)
ページ 2, アイテム 8 を参照



ATX 電源コネクタを接続します。

このマザーボードには 24 ピン ATX 電源コネクタが装備されており、従来の 20 ピン ATX 電源装置を採用している場合でも作動します。20 ピン ATX 電源を使用するには、ピン 1 およびピン 13 と共に電源装置にプラグを差し込みます。

20 ピン ATX 電源装置の取り付け

ATX 12V コネクタ
(8 ピン ATX12V1)
ページ 2, アイテム 1 を参照

ATX 電 12V 源コネクタを接続します。

このマザーボードで 8-pin ATX 12V 電源コネクタが提供されたが、従来の 4-pin ATX 12V 電源でも動作できます。4-pin ATX 電源を使用する場合、電源を Pin 1 と Pin 5 とともに差し込んでください。

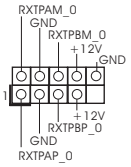
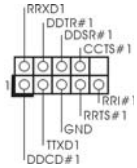
4-Pin ATX 12V 電源の取り付け

SLI/XFIRE 電源コネクタ
(4 ピン SLI/XFIRE_POWER1)
ページ 2, アイテム 43 を参照

SLI/XFIRE_POWER1

このコネクタを使用する必要はありませんが、2 つのグラフィックスカードがこのマザーボードに同時に差し込まれているとき、ハードディスクの電源コネクタに接続してください。

日本語

IEEE 1394 ヘッダ (9 ピン FRONT_1394) ページ 2, アイテム 31 を参照		I/O パネルには、デフォルトの 1 つの IEEE 1394 ポート以外に、このマザーボードに 1 つの IEEE 1394 ヘッダが搭載されています。それぞれの IEEE 1394 ヘッダは 1 つの IEEE 1394 ポートをサポートできます。
シリアルポートヘッダ (9 ピン COM1) ページ 2, アイテム 33 を参照		この COM1 ヘッダは、シリアルポートモジュールをサポートします。
HDMI_SPDIF ヘッダ (2- ピン HDMI_SPDIF1) ページ 2, アイテム 34 を参照		HDMI_SPDIF ヘッダは、SPDIF 音声出力を HDMI VGA カードに提供し、システムで HDMI デジタル TV/ プロジェクタ /LCD デバイスに接続できるようにします。HDMI VGA カードの HDMI_SPDIF コネクタを、このヘッダに接続してください。

1.5 クイックスイッエ

マザーボードには電源スイッチ、リセットスイッチおよびクリアリング CMOS スイッチの 3 つのクイックスイッチがあり、システムの電源のオン / オフの素早い切り替えまたはリセットまたは CMOS 値の消去をできるようになっています。

電源スイッチ (PWRBTN) ページ2, アイテム 18 を参照		電源スイッチはクイックスイッチで、システム電源のオン / オフを素早く切り替えることができます。
リセットスイッエ (RSTBTN) ページ2, アイテム 17 を参照		リセットスイッエはクイックスイッエで、システムを素早くリセットすることができます。
クリア CMOS スイッエ (CLRCBTN) ページ 3, アイテム 17 を参照		クリア CMOS スイッエはクイックスイッエで、CMOS 値を素早くクリアできます。

日本語

2. BIOS 情報

BIOS セットアップユーティリティはマザーボードのフラッシュメモリに保存されています。コンピュータを起動させた後、POST(パワーオンセルフテスト)中に〈F2〉または〈Del〉を押し、BIOS セットアップユーティリティに入ってください。押さない場合、POST はテストルーチンを続けます。テストを実行した後に BIOS セットアップユーティリティに入りたい場合、POST 終了後〈Ctrl〉+〈Alt〉+〈Delete〉を押すか、ケースのリセットスイッチを押してシステムを再起動してください。BIOS セットアップユーティリティは、ユーザーフレンドリであることを目指しています。これはメニュウ方式のプログラムです。スクロールさせることで様々なサブメニューを表示し、かつあらかじめ定義した選択肢から選択することが可能です。BIOS セットアップの詳細な情報については、サポート CD 内のユーザーズマニュアル (PDF ファイル) をごらんください。

3. ソフトウェア サポート CD 情報

このマザーボードは Microsoft® Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit といった様々なマイクロソフト ウインドウズ オペレーティングシステムをサポートします。マザーボードに付属しているサポート CD はマザーボードの特徴を有効にするために必要なドライバやユーティリティを含んでいます。サポート CD を使用するには、CDROM ドライブに CD を挿入してください。AUTORUN 機能が有効な場合、自動的にメインメニュウが立ち上がります。AUTORUN 機能が無効な場合、サポート CD 内の BIN フォルダにある ASSETUP.EXE をダブルクリックすることにより、メインメニュウが立ち上がります。

1. 主板简介

谢谢你采用了华擎 ***Z77 WS*** 主板，本主板由华擎严格制造，质量可靠，稳定性好，能够获得卓越的性能。本安装指南介绍了安装主板的步骤。更加详细的主板信息可参看驱动光盘的用户手册。

由于主板规格和 BIOS 软件将不断升级，本手册之相关内容变更恕不另行通知。请留意华擎网站上公布的升级版本。你也可以在华擎网站找到最新的显卡和 CPU 支持表。
华擎网址：http://www.asrock.com
如果您需要与此主板有关的技术支持，请参观我们的网站以了解您使用机种的规格信息。
www.asrock.com/support/index.asp

1.1 包装盒内物品

华擎 ***Z77 WS*** 主板
（ATX 规格：12.0 英寸 X 9.6 英寸，30.5 厘米 X 24.4 厘米）
华擎 ***Z77 WS*** 快速安装指南
华擎 ***Z77 WS*** 支持光盘
六条 Serial ATA(SATA) 数据线（选配）
一条 Serial ATA(SATA) 硬盘电源线（选配）
一块 I/O 挡板
两个华擎 SLI_Bridge 桥接卡
一个华擎 SLI_Bridge_3S 桥接卡
一个华擎 3-Way SLI 桥接卡

ASRock提醒您...
为了在 Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit 系统中取得更好的性能，建议您在BIOS中将Storage Configuration（存储配置）选项设成AHCI模式。关于BIOS设置程序，请参见支持光盘中的“User Manual”以了解相详细信息。

简体中文

1.2 主板规格

架构	- ATX 规格：12.0 英寸 X 9.6 英寸，30.5 厘米 X 24.4 厘米 - 优质镀金电容设计（100% 日制高品质高传导性固态电容）
处理器	- 支持第三代和二代 Intel® Core™ i7 / i5 / i3 处理器 (LGA1155 针脚） - Digi 电源设计 - 8 + 4 电源相位设计 - 支持 Intel® Turbo Boost 2.0 技术 - 支持 K- 系列解锁的 CPU
芯片组	- Intel® Z77 - 支持 Intel® 快速启动技术和 Intel® 智能连接技术
系统内存	- 支持双通道 DDR3 内存技术 - 配备四个 DDR3 DIMM 插槽 - 支持 DDR3 3000+（超频）/2400（超频）/2133（超频）/1866（超频）/1600/1333/1066 non-ECC、un-buffered 内存 - 最高支持 32GB 系统容量 - 支持 Intel® Extreme Memory Profile(XMP)1.3/1.2
扩展插槽	- 5 x PCI Express 3.0 x16 插槽（PCIE2：x16 模式或 PCIE1/PCIE3/PCIE5/PCIE7：x16/0/16/0 模式或 x8/8/8/8 模式） * 使用 Intel® Ivy Bridge CPU 方可支持 PCIE 3.0。若使用 Intel® Sandy Bridge CPU，仅支持 PCIE 2.0。 - 1 x PCI Express 2.0 x16 插槽（PCIE4：x4 模式） - 1 x PCI Express 2.0 x1 插槽 - 支持 AMD Quad CrossFireX™,4 路 CrossFireX™,3 路 CrossFireX™ 和 CrossFireX™ 技术 - 支持 NVIDIA® Quad SLI™,4 路 SLI™,3 路 SLI™ 和 SLI™ 技术
板载显卡	* 仅内置 GPU 的处理器可支持 Intel® HD Graphics 内置视觉特性与 VGA 输出。 - 支持 Intel® HD Graphics 内置视觉特性：Intel® Quick Sync Video 2.0、Intel® InTru™ 3D、Intel® Clear Video HD 技术、Intel® Insider™、Intel® HD Graphics 2500/4000 - Intel® Ivy Bridge CPU 支持 Pixel Shader 5.0、DirectX 11 技术。Intel® Sandy Bridge CPU 支持 Pixel Shader 4.1、DirectX 10.1 技术 - 最大共享内存 1760MB - 支持 HDMI 1.4a，最高分辨率达 1920x1200 @ 60Hz - 支持 HDMI，可支持 Auto Lip Sync、Deep Color (12bpc)、xvYCC 与 HBR（高位速音频）（需配备兼容 HDMI 的显示器） - 通过 HDMI 接口支持 HDCP 功能 - 通过 HDMI 接口可播放 1080 线蓝光光盘 (BD) / HD-DVD 光盘

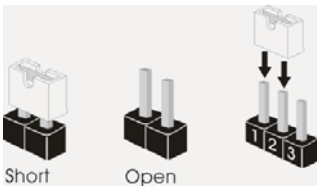
音效	- 7.1 声道高保真音频，支持内容保护功能 (Realtek ALC898 音频编解码器) - 支持优质蓝光音效
板载 LAN 功能	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - 支持网路唤醒 (Wake-On-LAN) - 支持 Energy Efficient Ethernet 802.3az - 支持双 LAN 整合功能 - 支持 PXE
储存装置	- 2 x Intel® Z77的SATA3 6.0Gb/s连接头，支持RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage 和 Intel Smart Response 技术)，NCQ，AHCI 和热插拔功能 - 4 x ASMedia ASM1061 的 SATA3 6.0Gb/s 连接头，支持 NCQ，AHCI 和热插拔功能 (SATA3_A4连接头和eSATA3接口共享资源) - 4 x Intel® Z77的SATA2 3.0Gb/s连接头，支持RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage 和 Intel Smart Response 技术)，NCQ，AHCI 和热插拔功能
Rear Panel I/O (后面板输入 / 输出接口)	I/O 界面 - 1 个 PS/2 键盘 / 鼠标接口 - 1 个 HDMI 接口 - 1 个光纤 SPDIF 输出接口 - 2 个可直接使用的 USB 2.0 接口 - 1 个 eSATA3 接口 - 8 个可直接使用的 USB 3.0 接口 - 2 个 RJ-45 局域网接口与 LED 指示灯 (ACT/LINK LED 和 SPEED LED) - 1 个 IEEE 1394 接口 - 1 个带 LED 的 CMOS 数据清除开关 - 高保真音频插孔：后置喇叭 / 中置喇叭 / 低音喇叭 / 音频输入 / 前置喇叭 / 麦克风
USB 3.0	- 4 x Intel® Z77的后置USB 3.0连接头，支持USB 1.0/2.0/3.0到 5Gb/s - 4 x Etron EJ188 的后置 USB 3.0 连接头，支持 USB 1.0/2.0/3.0 到 5Gb/s - 2 x Etron EJ188 的前置 USB 3.0 连接头 (支持 4 个 USB 3.0 接口)，支持 USB 1.0/2.0/3.0 到 5Gb/s
连接头	- 1 x 红外线模块接头 - 1 x 消费类红外线模块接头 - 1 x 串行接口 - 1 x HDMI_SPDIF 接头 - 1 x IEEE 1394 接头

	– 1 x 电源指示灯连接排针 – 2 x CPU 风扇接头（1 x 4 针、1 x 3 针） – 3 x 机箱风扇接头（1 x 4 针、2 x 3 针） – 1 x 电源风扇接头（3 针） – 24 针 ATX 电源接头 – 8 针 12V 电源接头 – SLI/XFire 电源接头 – 前置音频面板接头 – 2 x USB 2.0 接针（可支持 4 个额外的 USB 2.0 接口） – 1 x USB 3.0 接针（可支持 2 个额外的 USB 3.0 接口） – 1 x Dr. Debug（7 段调试 LED)(见第42-45页) – 1 个带 LED 的电源开关 – 1 个带 LED 的复位开关 – 1 个带 LED 的 CMOS 数据清除开关
BIOS	– 64Mb AMI UEFI Legal BIOS，支持 GUI – 支持即插即用（Plug and Play,PnP） – ACPI 1.1 电源管理 – 支持 jumperfree 免跳线模式 – 支持 SMBIOS 2.3.1 – CPU Core，IGPU，DRAM，1.8V PLL，VTT，VCCSA 电压多功能调节器
支持光盘	– 驱动程序，工具软件，杀毒软件（测试版本）,CyberLink MediaEspresso 6.5 试用版，华擎 MAGIX 多媒体套件 – OEM
硬件监控器	– CPU 温度侦测 – 主板温度侦测 – CPU/ 机箱 / 电源风扇转速计 – CPU/ 机箱静音风扇（允许根据 CPU 温度自动调整机箱风扇速度） – CPU/ 机箱风扇多速控制 – 电压范围：+12V，+5V，+3.3V，核心电压
操作系统	– Microsoft® Windows® 7/7 64 位元 /Vista™/Vista™ 64 位元 / XP/XP 64 位元适用于此主板
认证	– FCC，CE，WHQL – 支持 ErP/EuP（需要同时使用支持 ErP/EuP 的电源供应器）

* 请参阅华擎网站了解详细的产品信息： http://www.asrock.com

1.3 跳线设置

插图所示的就是设置跳线的方法。当跳线帽放置在针脚上时，这个跳线就是“短接”。如果针脚上没有放置跳线帽，这个跳线就是“开路”。插图显示了一个 3 针脚的跳线，当跳线帽放置在针脚 1 和针脚 2 之间时就是“短接”。



接脚	设定
清除 CMOS (CLRCMOS1，3 针脚跳线) (见第 2 页第 22 项)	1_2 默认设置 2_3 清除 CMOS

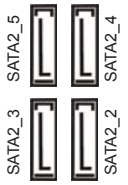
注意：CLRCMOS1 允许您清除 CMOS 中的数据。如要清除并将系统参数恢复至默认设置，请关闭计算机，然后从电源插座上拔掉电源线。等待 15 秒后，使用跳线帽将 CLRCMOS1 上的插针 2 和插针 3 短接 5 秒。但是，请勿在更新 BIOS 后立即清除 CMOS。如果需要在更新 BIOS 后立即清除 CMOS，必须在执行 CMOS 清除操作之前，先启动然后关闭系统。请注意，只有取出 CMOS 电池，密码、日期、时间、用户默认配置文件、1394 GUID 和 MAC 地址才会被清除。

清除CMOS开关与清除CMOS跳线具有相同的功能。

1.4 板载接头和接口

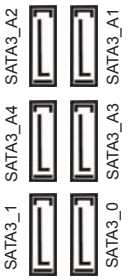
板载接头和接口不是跳线。切勿将跳线帽放置在这些接头和接口上。将跳线帽放置在接头和接口上将会导致主板的永久性损坏！

Serial ATA2 接口
(SATA2_2_3：见第 2 页第 15 项)
(SATA2_4_5：见第 2 页第 16 项)



这里有四组 Serial ATA2 (SATA2) 接口支持 Serial (SATA) 数据线作为内部储存设置。目前 SATA2 界面理论上可提供高达 3.0Gb/s 的数据传输速率。

Serial ATA3 接口
(SATA3_A1_A2：见第 2 页第 12 项)
(SATA3_A3_A4：见第 2 页第 13 项)
(SATA3_0_1：见第 2 页第 14 项)



这里有六组 Serial ATA3 (SATA3) 接口支持 Serial (SATA) 数据线作为内部储存设置。目前 SATA3 界面理论上可提供高达 6.0Gb/s 的数据传输速率。若您将硬盘连接到后侧面板 I/O 的 eSATA3 接口，则内部的 SATA3_A4 将失效。

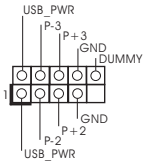
Serial ATA (SATA) 数据线（选配）

SATA 数据线的任意一端均可连接 SATA/SATA2/SATA3 硬盘或者主板上的 SATA2/SATA3 接口。

Serial ATA (SATA) 电源线
（选配）

请将 SATA 电源线黑色的一端连接到 SATA 驱动器的电源接口。然后将 SATA 电源线白色的一端连接到电源适配器的电源接口。

USB 2.0 扩展接头
(9 针 USB2_3)
（见第 2 页第 25 项）

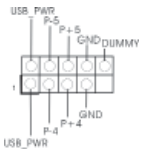


除了位於 I/O 面板的两个默认 USB 2.0 接口之外，这款主板有三组 USB 2.0 接针。这组 USB 2.0 接针可以支持两个 USB 2.0 接口。

简体中文

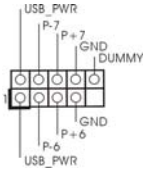
(9 针 USB4_5)

(见第 2 页第 26 项)



(9 针 USB6_7)

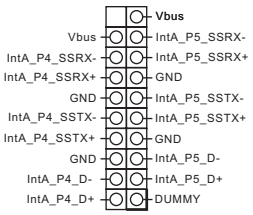
(见第 2 页第 27 项)



USB 3.0 扩展接头

(19 针 USB3_9_10)

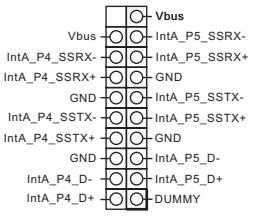
(见第 2 页第 10 项)



除了位於 I/O 面板的八个默认 USB 3.0 接口之外，这款主板有两组 USB 3.0 接针。每组 USB 3.0 接针可以支持两个 USB 3.0 接口。

(19 针 USB3_11_12)

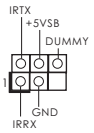
(见第 2 页第 9 项)



红外线模块接头

(5 针 IR1)

(见第 2 页第 32 项)

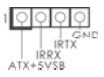


这个接头支持一个选配的无线发送和接受红外线的模块。

消费类红外线模块接头

(4 针 CIR1)

(见第 2 页第 28 项)

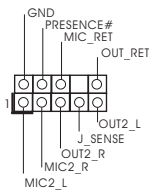


此接口可以连接遥控器。

前置音频面板接头

(9 针 HD_AUDIO1)

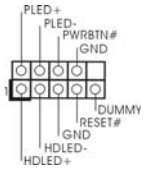
(见第 2 页第 35 项)



可以方便连接音频设备。

1. 高保真音频 (High Definition Audio, HDA) 支持智能音频接口检测功能 (Jack Sensing)，但是机箱面板的连线必须支持 HDA 才能正常使用。请按我们提供的手册和机箱手册上的使用说明安装您的系统。2. 如果您使用 AC'97 音频面板，请按照下面的步骤将它安装到前面板音频接针：
   A. 将 Mic_IN(MIC) 连接到 MIC2_L。
   B. 将 Audio_R(RIN) 连接到 OUT2_R，将 Audio_L(LIN) 连接到 OUT2_L。
   C. 将 Ground(GND) 连接到 Ground(GND)。
   D. MIC_RET 和 OUT_RET 仅用于 HD 音频面板。您不必将它们连接到 AC'97 音频面板。
   E. 开启前置麦克风。
   在 Windows® XP / XP 64 位元操作系统中：
   选择"Mixer"。选择"Recorder"。接著点击"FrontMic"。
   在 Windows® 7 / 7 64 位元 / Vista™ / Vista™ 64 位元操作系统中：
   在 Realtek 控制面板中点击"FrontMic"。调节"Recording Volume"。

系统面板接头
(9 针 PANEL1)
(见第 2 页第 20 项)



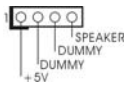
这个接头提供数个系统前面板功能。

根据下面的针脚说明连接机箱上的电源开关、重启按钮与系统状态指示灯到这个排针。根据之前请注意针脚的正负极。

PWRBTN(电源开关)：
连接机箱前面板的电源开关。您可以设置用电源键关闭系统的方式。
RESET(重启开关)：
连接机箱前面板的重启开关。当电脑死机且无法正常重新启动时，可按下重启开关重新启动电脑。
PLED(系统电源指示灯)：
连接机箱前面板的电源状态指示灯。当系统运行时，此指示灯亮起。当系统处于 S1/S3 待机模式时，此指示灯保持闪烁。当系统处于 S4 待机模式或关机 (S5) 模式时，此指示灯熄灭。
HD LED(硬盘活动指示灯)：
连接机箱前面板的硬盘动作指示灯。当硬盘正在读取或写入数据时，此指示灯亮起。

前面板设计因机箱不同而有差异。前面板模块一般由电源开关、重启开关、电源指示灯、硬盘动作指示灯、喇叭等构成。将您的机箱前面板连接到此排针时，请确认连接线与针脚上的说明相对应。

机箱喇叭接头
(4 针 SPEAKER1)
(见第 2 页第 21 项)



请将机箱喇叭连接到这个接头。

简体中文

电源指示灯连接排针

(3 针 PLED1)

(见第 2 页第 19 项)

请将机箱电源指示灯连接到这一排针，以指示系统电源状态。当系统正在运行时，LED 指示灯亮。在 S1/S3 模式下，LED 指示灯会不停闪烁。在 S3/S4 或 S5 模式（关机）下，LED 指示灯会熄灭。

机箱，电源风扇接头

(4 针 CHA_FAN1)

(见第 2 页第 30 项)

(3 针 CHA_FAN2)

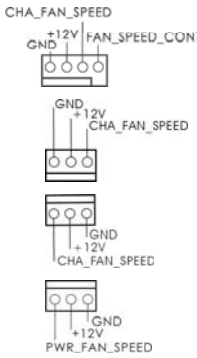
(见第 2 页第 29 项)

(3 针 CHA_FAN3)

(见第 2 页第 44 项)

(3 针 PWR_FAN1)

(见第 2 页第 3 项)

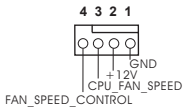


请将风扇连接线接到这个接头，并让黑线与接地的针脚相接。CHA_FAN1、CHA_FAN2 和 CHA_FAN3 支持风扇控制。

CPU 风扇接头

(4 针 CPU_FAN1)

(见第 2 页第 4 项)



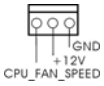
请将 CPU 风扇连接线接到这个接头，让黑线与接地的针脚相接。

虽然此主板支持 4-Pin CPU 风扇 (Quiet Fan，静音风扇)，但是没有调速功能的 3-Pin CPU 风扇仍然可以在此主板上正常运行。如果您打算将 3-Pin CPU 风扇连接到此主板的 CPU 风扇接口，请将它连接到 Pin 1-3。

Pin 1-3 连接
3-Pin 风扇的安装

(3 针 CPU_FAN2)

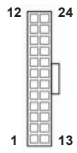
(见第 2 页第 5 项)



ATX 电源接头

(24 针 ATXPWR1)

(见第 2 页第 8 项)



请将 ATX 电源供应器连接到这个接头。

简体中文

虽然此主板提供 24-pin ATX 电源接口，但是您仍然可以使用传统的 20-pin ATX 电源。为了使用 20-pin ATX 电源，请顺著 Pin 1 和 Pin 13 插上电源接头。

20-Pin ATX 电源安装说明

ATX 12V 接头
(8 针 ATX12V1)
(见第 2 页第 1 项)

请将一个 ATX 12V 电源供应器接到这个接头。

虽然此主板提供 8-pin ATX 12V 电源接口，但是您仍然可以使用传统的 4-pin ATX 12V 电源。为了使用 4-pin ATX 12V 电源，请顺著 Pin 1 和 Pin 5 插上电源接头。

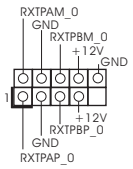
4-Pin ATX 12V 电源安装说明

SLI/XFIRE 电源接头
(4 针 SLI/XFIRE_POWER1)
(见第 2 页第 43 项)

SLI/XFIRE_POWER1

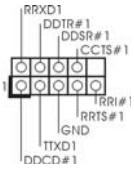
一般不需要使用这个接口，但是如果主板上同时插入两块显卡时，请将它连接到硬盘电源接口。

IEEE 1394 接口
(9 针 FRONT_1394)
(见第 2 页第 31 项)



除了位於 I/O 面板的一个默认 IEEE 1394 接口之外，这款主板有一组 IEEE 1394 接针。这组 IEEE 1394 接针可以支持一个 IEEE 1394 接口。

串行接口连接器
(9 针 COM1)
(见第 2 页第 33 项)



这个 COM1 端口支持一个串行接口的外设。

HDMI_SPDIF 接头
(2 针 HDMI_SPDIF1)
(见第 2 页第 34 项)

HDMI_SPDIF 接头，提供 SPDIF 音频输出至 HDMI 显卡，支持将电脑连接至带 HDMI 的数字电视 / 投影仪 / 液晶显示器等设备。请将 HDMI 显卡的 HDMI_SPDIF 接口连接到这个接头。

简体中文

1.5 快速开关

本主板有三个快速开关：电源开关，复位开关与 CMOS 数据清除开关，可让用户快速开启 / 关闭或复位系统，或者清除 CMOS 中的数据。

电源开关 (PWRBTN) (见第 2 页第 18 项)		电源开关是一种快速开关，可让用户快速开启 / 关闭系统。
复位开关 (RSTBTN) (见第 2 页第 17 项)		复位开关是一种快速开关，可让用户快复位系统。
CMOS 数据清除开关 (CLRCBTN) (见第 3 页第 17 项)		CMOS 数据清除开关是一种快速开关，可让用户快速清除 CMOS 中的数据。

2. BIOS 信息

主板上的 Flash Memory 存储了 BIOS 设置程序。请再启动电脑进行开机自检 (POST) 时按下 <F2> 或 <Del> 键进入 BIOS 设置程序；此外，你也可以让开机自检 (POST) 进行常规检验。如果你需要在开机自检 (POST) 之后进入 BIOS 设置程序，请按下 <Ctrl>+<Alt>+<Delete> 键重新启动电脑，或者按下系统面板上的重启按钮。有关 BIOS 设置的详细信息，请查阅随机支持光盘里的用户手册 (PDF 文件)。

3. 支持光盘信息

本主板支持各种微软视窗操作系统：Microsoft® Windows® 7/7 64 位元 /Vista™/ Vista™ 64 位元 /XP/XP 64 位元。主板随机支持光盘包含各种有助于提高主板效能的必要驱动和实用程序。请将随机支持光盘放入光驱里，如果电脑的“自动运行”功能已启用，屏幕将会自动显示主菜单。如果主菜单不能自动显示，请查找支持光盘内 BIN 文件夹下的“ASSETUP.EXE”，并双击它，即可调出主菜单。

电子信息产品污染控制标示

依据中国发布的「电子信息产品污染控制管理办法」及 SJ/T 11364-2006「电子信息产品污染控制标示要求」，电子信息产品应进行标示，藉以向消费者揭露产品中含有的有毒有害物质或元素不致发生外泄或突变从而对环境造成污染或对人身、财产造成严重损害的期限。依上述规定，您可于本产品之印刷电路板上看见图一之标示。图一中之数字为产品之环保使用期限。由此可知此主板之环保使用期限为 10 年。

图一

有毒有害物质或元素的名称及含量说明

若您欲了解此产品的有毒有害物质或元素的名称及含量说明，请参照以下表格及说明。

部件名称	有害物质或元素					
	铅 (Pb)	镉 (Cd)	汞 (Hg)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板及电子组件	X	O	O	O	O	O
外部信号连接头及线材	X	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求，然该部件仍符合欧盟指令 2002/95/EC 的规范。

备注： 此产品所标示之环保使用年限，系指在一般正常使用状况下。

1. 主機板簡介

謝謝你採用了華擎 ***Z77 WS*** 主機板，本主機板由華擎嚴格製造，品質可靠，穩定性好，能夠獲得卓越的性能。此快速安裝指南包括了主機板介紹和分步驟安裝指導。您可以查看支持光碟裡的使用手冊了解更詳細的資料。

由於主機板規格和 BIOS 軟體將不斷更新，本手冊之相關內容變更恕不另行通知。請留意華擎網站上公布的更新版本。你也可以在華擎網站找到最新的顯示卡和 CPU 支援列表。
華擎網址：http://www.asrock.com
如果您需要與此主機板有關的技術支援，請參觀我們的網站以了解您使用機種的規格訊息。
www.asrock.com/support/index.asp

1.1 包裝盒內物品

華擎 ***Z77 WS*** 主機板
（ATX 規格：12.0 英吋 x 9.6 英吋，30.5 公分 x 24.4 公分）
華擎 ***Z77 WS*** 快速安裝指南
華擎 ***Z77 WS*** 支援光碟
六條 Serial ATA(SATA) 數據線（選配）
一條 Serial ATA(SATA) 硬碟電源線（選配）
一塊 I/O 擋板
兩張華擎 SLI_Bridge 卡
一張華擎 SLI_Bridge_3S 卡
一張華擎 3-Way SLI Bridge 卡

ASRock提醒您...
若要在Windows® 7 / 7 64位元 / Vista™ / Vista™ 64位元中發揮更好的效能，建議您將儲存裝置組態中的BIOS選項設為AHCI模式。有關BIOS設定的詳細資訊，請參閱支援光碟中的「使用者手冊」。

繁體中文

1.2 主機板規格

架構	- ATX 規格：12.0 英吋 x 9.6 英吋，30.5 公分 x 24.4 公分 - 頂級黃金電容器設計（百分百日本製造的高品質導電高分子電容器）
處理器	- 支援第三代和二代 Intel® Core™ i7 / i5 / i3 處理器 (LGA1155 腳位） - Digi 電源設計 - 8 + 4 電源相位設計 - 支援 Intel® Turbo Boost 2.0 技術 - 支援 K 系列解除鎖定 CPU
晶片組	- Intel® Z77 - 支持 Intel® 快速啟動技術和 Intel® 智能連接技術
系統記憶體	- 支援雙通道 DDR3 記憶體技術 - 4 個 DDR3 DIMM 插槽 - 支援 DDR3 3000+(超頻)/2400(超頻)/2133(超頻)/1866 (超頻)/1600/1333/1066 non-ECC、un-buffered 記憶體 - 最高支援 32GB 系統容量 - 支援 Intel® Extreme Memory Profile(XMP)1.3/1.2
擴充插槽	- 5 x PCI Express 3.0 x16 插槽 (PCIE2: x16 模式或 PCIE1/ PCIE3/PCIE5/PCIE7: x16/0/16/0 模式或 x8/8/8/8 模式) * PCIE 3.0 僅適用 Intel® Ivy Bridge CPU。Intel® Sandy Bridge CPU 僅支援 PCIE 2.0。 - 1 x PCI Express 2.0 x16 插槽 (PCIE4: x4 模式) - 1 x PCI Express 2.0 x1 插槽 - 支援 AMD Quad CrossFireX™, 4-Way CrossFireX™, 3-Way CrossFireX™ 和 CrossFireX™ 技術 - 支援 NVIDIA® Quad SLI™, 4-Way SLI™, 3-Way SLI™ 和 SLI™ 技術
內建顯示	* 只有整合 GPU 的處理器才支援 Intel® HD Graphics 內建視覺技術 (Built-in Visuals) 與 VGA 輸出。 - 支援 Intel® HD Graphics 內建視覺技術 (Built-in Visuals)：Intel® Quick Sync Video 2.0、Intel® InTru™ 3D、Intel® Clear Video HD Technology、Intel® Insider™、Intel® HD Graphics 2500/4000 - Intel® Ivy Bridge CPU 支援 Pixel Shader 5.0、DirectX 11 技術。Intel® Sandy Bridge CPU 支援 Pixel Shader 4.1、DirectX 10.1 技術 - 最大共享記憶體 1760MB - 支援 HDMI 1.4a, 最高解析度達 1920x1200 @ 60Hz - 支援 HDMI, 可支援 Auto Lip Sync、Deep Color (12bpc)、

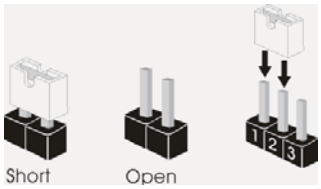
	xvYCC 與 HBR(高位元率音效)(需具備相容 HDMI 的銀幕) - HDMI 接口支援 HDCP 功能 - HDMI 接口可播放 1080p 藍光光碟 (BD) / HD-DVD 光碟
音效	- 7.1 聲道高清晰音效 , 支援內容保護功能 (Realtek ALC898 音效編解碼器) - 支援高級藍光音效
網路功能	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - 支援網路喚醒 (Wake-On-LAN) - 支援 Energy Efficient Ethernet 802.3az - 支援雙 LAN 彙整功能 - 支援 PXE
儲存裝置	- 2 x Intel® Z77 的 SATA3 6.0Gb/s 接頭，支援 RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage 和 Intel Smart Response 技術), NCQ, AHCI 和熱插拔功能 - 4 x ASMedia ASM1061 的 SATA3 6.0Gb/s 接頭，支援 NCQ, AHCI 和熱插拔功能 (SATA3_A4 接頭和 eSATA3 接口共享資源) - 4 x Intel® Z77 的 SATA2 3.0Gb/s 接頭，支援 RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage 和 Intel Smart Response 技術), NCQ, AHCI 和熱插拔功能
Rear Panel I/O (後背板輸入 / 輸出接口)	I/O 界面 - 1 個 PS/2 鍵盤 / 滑鼠接口 - 1 個 HDMI 接口 - 1 個光纖 SPDIF 輸出接口 - 2 個可直接使用的 USB 2.0 接口 - 1 個 eSATA3 接口 - 8 個可直接使用的 USB 3.0 接口 - 2 個 RJ-45 區域網接口與 LED 指示燈 (ACT/LINK LED 和 SPEED LED) - 1 個 IEEE 1394 接口 - 1 個 LED CMOS 數據清除開關 - 高清晰音效插孔：後置喇叭 / 中置喇叭 / 低音喇叭 / 音效輸入 / 前置喇叭 / 麥克風
USB 3.0	- 4 x Intel® Z77 的後置 USB 3.0 接頭，支援 USB 1.0/2.0/3.0 到 5Gb/s - 4 x Etron EJ188 的後置 USB 3.0 接頭，支援 USB 1.0/2.0/3.0 到 5Gb/s - 2 x Etron EJ188 的前置 USB 3.0 接頭 (支援 4 個 USB 3.0 接頭)，支援 USB 1.0/2.0/3.0 到 5Gb/s
接頭	- 1 x 紅外線模組接頭 - 1 x 消費性紅外線模組插座

	- 1 x 序列埠 - 1 x HDMI_SPDIF 接頭 - 1 x IEEE 1394 接頭 - 1 x 電源指示燈接頭 - 2 x CPU 風扇接頭(1 x 4 針、1 x 3 針) - 3 x 機箱風扇接頭(1 x 4 針、2 x 3 針) - 1 x 電源風扇接頭(3 針) - 24 針 ATX 電源接頭 - 8 針 12V 電源接頭 - SLI/XFire 電源接頭 - 前置音效接頭 - 2 x USB 2.0 接頭(可支援 4 個額外的 USB 2.0 接口) - 1 x USB 3.0 接頭(可支援 2 個額外的 USB 3.0 接口) - 1 x Dr. Debug (7 段顯示器偵錯 LED)(見第42~45頁) - 1 個 LED 電源開關 - 1 個 LED 重置開關 - 1 個 LED CMOS 數據清除開關
BIOS	- 64Mb AMI UEFI Legal BIOS(支援 GUI) - 支援即插即用 (Plug and Play,PnP) - ACPI 1.1 電源管理 - 支援 jumperfree 免跳線模式 - 支援 SMBIOS 2.3.1 - CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA 電壓多功能調節
支援光碟	- 驅動程式, 工具軟體, 防毒軟體(試用版本),CyberLink MediaEspresso 6.5 試用版, 華擎 MAGIX 多媒體套餐 - OEM
硬體監控	- CPU 溫度偵測 - 主機板溫度偵測 - CPU/ 機箱 / 電源風扇轉速計 - CPU/ 機箱靜音風扇(可透過 CPU 溫度自動調節機箱的風扇速度) - CPU/ 機箱風扇多速控制 - 電壓範圍:+12V, +5V, +3.3V, 核心電壓
操作系統	- Microsoft® Windows® 7/7 64 位元 /Vista™/Vista™ 64 位元 / XP/XP 64 位元
認證	- FCC, CE, WHQL - 支援 ErP/EuP(需要同時使用支援 ErP/EuP 的電源供應器)

* 請參閱華擎網站了解詳細的產品訊息: http://www.asrock.com

1.3 跳線設置

插圖所示的就是設置跳線的方法。當跳線帽放置在針腳上時，這個跳線就是“短接”。如果針腳上沒有放置跳線帽， 這個跳線就是“開路”。插圖顯示了一個 3 針腳的跳線，當跳線帽放置在針腳 1 和針腳 2 之間時就是“短接”。



接腳	設定	
清除 CMOS (CLRCMOS1, 3 針腳跳線) (見第 2 頁第 22 項)	1_2 默認設置	2_3 清除 CMOS

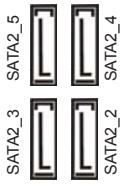
註： CLRCMOS1 可供您清除 CMOS 中的資料。若要清除及重設系統參數並恢復為預設設定，請先關閉電腦電源，並從電源插座中拔下電源線，等待 15 秒鐘之後，使用跳線帽使 CLRCMOS1 的 pin2 及 pin3 短路 5 秒的時間。但請勿於更新 BIOS 後立即清除 CMOS。如需於更新 BIOS 後立即清除 CMOS，您必須先開機再關機，然後再執行 CMOS 清除操作。請注意，只有在移除 CMOS 電池的情況下，密碼、日期、時間、使用者預設設定檔、1394 GUID 及 MAC 位址才會清除。

Clear CMOS開關的功能與Clear CMOS跳線相同。

1.4 接頭

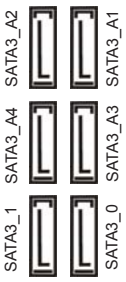
此類接頭是不用跳線帽連接的，請不要用跳線帽短接這些接頭。
跳線帽不正確的放置將會導致主機板的永久性損壞！

Serial ATA2 接口
(SATA2_2_3: 見第 2 頁第 15 項)
(SATA2_4_5: 見第 2 頁第 16 項)



這裡有四組 Serial ATA2 (SATA2) 接口支援 SATA 數據線作為內部儲存設置。目前 SATA2 界面理論上可提供高達 3.0Gb/s 的數據傳輸速率。

Serial ATA3 接口
(SATA3_A1_A2: 見第 2 頁第 12 項)
(SATA3_A3_A4: 見第 2 頁第 13 項)
(SATA3_0_1: 見第 2 頁第 14 項)



這裡有六組 Serial ATA3 (SATA3) 接口支援 SATA 數據線作為內部儲存設置。目前 SATA3 界面理論上可提供高達 6.0Gb/s 的數據傳輸速率。若在後方 I/O 的 eSATA3 連接埠安裝硬碟，內部 SATA3_A4 將失去作用。

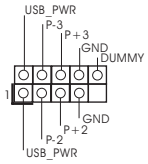
Serial ATA (SATA) 數據線
(選配)

SATA 數據線的任意一端均可連接 SATA/SATA2/SATA3 硬碟或者主機板上的 SATA2/SATA3 接口。

Serial ATA (SATA) 電源線
(選配)

請將 SATA 電源線黑色的一端連接到 SATA 驅動器的電源接口。然後將 SATA 電源線白色的一端連接到電源適配器的電源接口。

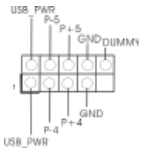
USB 2.0 擴充接頭
(9 針 USB2_3)
(見第 2 頁第 25 項)



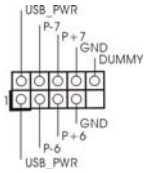
除了位於 I/O 面板的兩個 USB 2.0 接口之外，這款主機板有三組 USB 2.0 接針。每組 USB 2.0 接針可以支援兩個 USB 2.0 接口。

繁體中文

(9 針 USB4_5)
(見第 2 頁第 26 項)



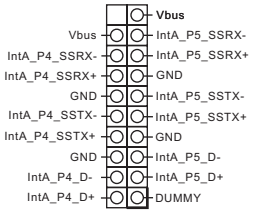
(9 針 USB6_7)
(見第 2 頁第 27 項)



USB 3.0 擴充接頭

(19 針 USB3_9_10)

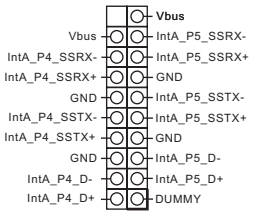
(見第 2 頁第 10 項)



除了位於 I/O 面板的八個 USB 3.0 接口之外，這款主機板有兩組 USB 3.0 接針。每組 USB 3.0 接針可以支援兩個 USB 3.0 接口。

(19 針 USB3_11_12)

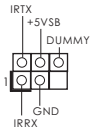
(見第 2 頁第 9 項)



紅外線模組接頭

(5 針 IR1)

(見第 2 頁第 32 項)

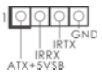


這個接頭支援一個選配的模組，可用來無線傳輸和接收紅外線。

消費性紅外線模組插座

(4 針 CIR1)

(見第 2 頁第 28 項)

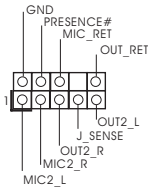


此插座可用於連接遙控器。

前置音效接頭

(9 針 HD_AUDIO1)

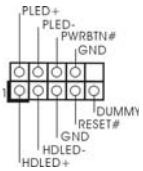
(見第 2 頁第 35 項)



可以方便連接音效設備。

1. 高清晰音效(High Definition Audio, HDA)支援智能音效接口檢測功能(Jack Sensing),但是機箱面板的連線必須支持 HDA 才能正常使用。請按我們提供的手冊和機箱手冊上的使用說明安裝您的系統。
2. 如果您使用 AC' 97 音效面板,請按照下面的步驟將它安裝到前面板音效接針:
   A. 將 Mic_IN(MIC)連接到 MIC2_L。
   B. 將 Audio_R(RIN)連接到 OUT2_R,將 Audio_L(LIN)連接到 OUT2_L。
   C. 將 Ground(GND)連接到 Ground(GND)。
   D. MIC_RET 和 OUT_RET 僅用於 HD 音效面板。您不必將它們連接到 AC' 97 音效面板。
   E. 開啟前置麥克風。
   在 Windows® XP / XP 64 位元作業系統中:
   選擇" Mixer"。選擇" Recorder"。接著點選" FrontMic"。
   在 Windows® 7 / 7 64 位元 / Vista™ / Vista™ 64 位元作業系統中:
   在 Realtek 控制面板中點選" FrontMic"。調整" Recording Volume"。

系統面板接頭
(9 針 PANEL1)
(見第 2 頁第 20 項)



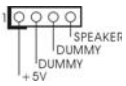
可接各種不同燈,電源開關及重啟鍵等各種連線。

請根據下面的腳位說明連接機箱上的電源開關、重開按鈕與系統狀態指示燈到這個接頭。請先注意針腳的正負極。

PWRBTN(電源開關):
連接機箱前面板的電源開關。您可以設定用電源鍵關閉系統的方式。
RESET(重開開關):
連接機箱前面板的重開開關。當電腦當機且無法正常重新啟動時,可按下重開開關重新啟動電腦。
PLED(系統電源指示燈):
連接機箱前面板的電源狀態指示燈。當系統運行時,此指示燈亮起。當系統處於 S1/S3 待命模式時,此指示燈保持閃爍。當系統處於 S4 待命模式或關機(S5)模式時,此指示燈熄滅。
HD LED(硬碟活動指示燈):
連接機箱前面板的硬碟動作指示燈。當硬碟正在讀取或寫入數據時,此指示燈亮起。

前面板設計因機箱不同而有差異。前面板模組一般由電源開關、重開開關、電源指示燈、硬碟活動指示燈、喇叭等構成。將您的機箱前面板連接到此接頭時,請確認連接線與針腳上的說明相對應。

機箱喇叭接頭
(4 針 SPEAKER1)
(見第 2 頁第 21 項)



請將機箱喇叭連接到這個接頭。

繁體中文

電源指示燈接頭

(3 針 PLED1)

(見第 2 頁第 19 項)

請將機箱電源指示燈連接到此接頭，以指示系統電源狀態。當系統正在運行時，LED 指示燈亮。在 S1/S3 模式下，LED 指示燈會不停閃爍。在 S4 或 S5 模式 (關機) 下，LED 指示燈會熄滅。

機箱，電源風扇接頭

(4 針 CHA_FAN1)

(見第 2 頁第 30 項)

(3 針 CHA_FAN2)

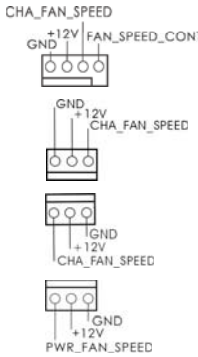
(見第 2 頁第 29 項)

(3 針 CHA_FAN3)

(見第 2 頁第 44 項)

(3 針 PWR_FAN1)

(見第 2 頁第 3 項)

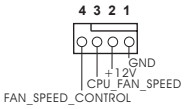


請將風扇連接線接到這個接頭，並讓黑線與接地的針腳相接。CHA_FAN1、CHA_FAN2 和 CHA_FAN3 支援風扇控制。

CPU 風扇接頭

(4 針 CPU_FAN1)

(見第 2 頁第 4 項)



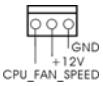
請將 CPU 風扇連接線接到這個接頭，並讓黑線與接地的針腳相接。

雖然此主板支持 4-Pin CPU 風扇 (Quiet Fan, 靜音風扇), 但是沒有調速功能的 3-Pin CPU 風扇仍然可以在此主板上正常運行。如果您打算將 3-Pin CPU 風扇連接到此主板的 CPU 風扇接口，請將它連接到 Pin 1-3。

Pin 1-3 連接
3-Pin 風扇的安裝

(4 針 CPU_FAN2)

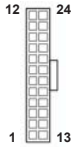
(見第 2 頁第 5 項)



ATX 電源接頭

(24 針 ATXPWR1)

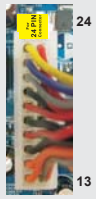
(見第 2 頁第 8 項)



請將 ATX 電源供應器連接到這個接頭。

繁體中文

雖然此主機板提供 24-pin ATX 電源接口，但是您仍然可以使用傳統的 20-pin ATX 電源。為了使用 20-pin ATX 電源，請順著 Pin 1 和 Pin 13 插上電源接頭。



20-Pin ATX 電源安裝說明

ATX 12V 電源接口
(8 針 ATX12V1)
(見第 2 頁第 1 項)

請將 ATX 12V 電源供應器連接到這個接頭。

雖然此主機板提供 8-pin ATX 12V 電源接口，但是您仍然可以使用傳統的 4-pin ATX 12V 電源。為了使用 4-pin ATX 12V 電源，請順著 Pin 1 和 Pin 5 插上電源接頭。

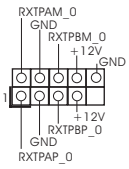
4-Pin ATX 12V 電源安裝說明

SLI/XFIRE 電源接頭
(4 針 SLI/XFIRE_POWER1)
(見第 2 頁第 43 項)

SLI/XFIRE_POWER1

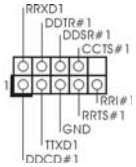
一般不需要使用這個接頭，但是如果主機板上同時插入兩張顯示卡時，請將它連接到硬碟電源接口。

IEEE 1394 接口
(9 針 FRONT_1394)
(見第 2 頁第 31 項)



除了位於 I/O 面板的一個默認 IEEE 1394 接口之外，這款主機板有一組 IEEE 1394 接針。這組 IEEE 1394 接針可支援一個 IEEE 1394 接口。

序列埠
(9 針 COM1)
(見第 2 頁第 33 項)



這個序列埠 COM1 支援一個序列埠的裝置。

HDMI_SPDIF 接頭
(2 針 HDMI_SPDIF1)
(見第 2 頁第 34 項)

HDMI_SPDIF 接頭，提供 SPDIF 音效輸出至 HDMI 顯示卡，支援將電腦連接至帶 HDMI 的數位電視 / 投影機 / 液晶銀幕等設備。請將 HDMI 顯示卡的 HDMI_SPDIF 接口連接到這個接頭。

繁體中文

1.5 快速開關

本主機板有三個快速開關：電源開關，重置開關與 CMOS 數據清除開關，可讓用戶快速開啟 / 關閉或重置系統，或者清除 CMOS 中的數據。

電源開關 (PWRBTN) (見第 2 頁第 18 項)		電源開關是一種快速開關，可讓用戶快速開啟 / 關閉系統。
重置開關 (RSTBTN) (見第 2 頁第 17 項)		重置開關是一種快速開關，可讓用戶快重置系統。
CMOS 數據清除開關 (CLRCBTN) (見第 3 頁第 17 項)		CMOS 數據清除開關是一種快速開關，可讓用戶快速清除 CMOS 中的數據。

2. BIOS 訊息

主板上的Flash Memory晶片存儲了BIOS設置程序。啟動系統，在系統開機自檢(POST)的過程中按下 <F2> 或 <Del> 鍵，就可進入 BIOS 設置程序，否則將繼續進行開機自檢之常規檢驗。如果需要在開機自檢後進入 BIOS 設置程序，請按下 <Ctl> + <Alt> + <Delete> 鍵重新啟動電腦，或者按下系統面板上的重開按鈕。功能設置程序儲存有主板自身的和連接在其上的設備的缺省和設定的參數。這些訊息用於在啟動系統和系統運行需要時，測試和初始化元件。有關 BIOS 設置的詳細訊息，請查閱隨機支援光碟裡的使用手冊 (PDF 文件)。

3. 支援光碟訊息

本主板支援各種微軟 Windows® 操作系統：Microsoft® Windows® 7/7 64 位元 / Vista™/Vista™ 64 位元 /XP/XP 64 位元。主板附帶的支援光碟包含各種有助於提高主板效能的必要驅動和實用程式。請將隨機支援光碟放入光碟機裡，如果系統的“自動運行”功能已啟用，銀幕將會自動顯示主菜單。如果主菜單不能自動顯示，請查閱支援光碟內 BIN 文件夾下的 ASSETUP.EXE 文件並雙點它，即可調出主菜單。

1. Penjelasan

Terima kasih telah membeli motherboard ASRock ***Z77 WS***, motherboard andal yang diproduksi berdasarkan kontrol kualitas tinggi ASRock secara konsisten. Motherboard ini memberikan performa terbaik dengan desain yang kokoh sesuai komitmen ASRock untuk kualitas dan daya tahan.

Panduan Pemasangan Ringkas ini berisi pendahuluan tentang motherboard dan panduan pemasangan langkah demi langkah. Informasi lengkap lainnya tentang motherboard ini tersedia di buku panduan yang diberikan bersama Support CD (CD Pendukung).

Karena spesifikasi papan induk dan software BIOS barangkali dapat diperbarui, isi dalam buku pedoman ini akan mengikuti perubahan tanpa peringatan. Dalam kondisi terjadinya modifikasi buku pedoman ini, versi baru akan diperlihatkan dalam website ASRock tanpa peringatan lebih. Anda dapat mendapatkan kartu- kartu yang paling baru dan daftar bantuan CPU pada website ASRock.
Website ASRock http://www.asrock.com

1.1 Isi Paket

Papan Induk ***Z77 WS*** ASRock
(Faktor Form ATX: 12.0-in x 9.6-in, 30.5 cm x 24.4 cm)
Pemimpin Instalasi Cepat ***Z77 WS*** ASRock
Support CD ***Z77 WS*** ASRock
6 x Kabel satu serial Data ATA (SATA) (bebas-pilih)
1 x Kabel Power Satu Serial ATA (SATA) HDD (bebas-pilih)
1 x Satu Pelindung I/O
2 x Kartu ASRock SLI_Bridge
1 x Kartu ASRock SLI_Bridge_3S
1 x Kartu ASRock 3-Way SLI Bridge

ASRock Mengingatkan...
Untuk mendapatkan performa lebih baik di Windows® 7/ 7 64-bit/ Vista™/ Vista™ 64-bit, sebaiknya atur pilihan BIOS dalam Storage Configuration (Konfigurasi Penyimpanan) ke mode AHCI. Untuk konfigurasi BIOS, lihat "Panduan Pengguna" dalam CD dukungan kami untuk informasi rinci.

1.2 Spesifikasi

Podium	- Faktor Form ATX: 12.0-in x 9.6-in, 30.5 cm x 24.4 cm - Desain Kapasitor Warna Emas Premium (100% Kapasitor Polimer Konduktif buatan Jepang berkualitas tinggi)
CPU	- Mendukung Intel® Core™ i7 / i5 / i3 Generasi Ke-3 dan Ke-2 dalam Paket LGA1155 - Digi Power Desain - Desain daya 8 + 4 fase - Menggunakan Teknologi Intel® Turbo Boost 2.0 - Mendukung CPU K-Series jenis “unlocked”
Grup Chip	- Intel® Z77 - Mendukung Intel® Rapid Start Technology dan Smart Connect Technology
Ingatan	- Teknologi ingatan DDR3 dwisaluran - 4 x Alur DDR3 DIMM - Mendukung memori DDR3 3000+(OC)/2400(OC)/2133(OC) /1866(OC)/1600/1333/1066 non-ECC yang tidak di-buffer - Kapasitas paling banyak: 32GB - Mendukung Intel® Extreme Memory Profile (XMP)1.3/1.2
Alur Ekspansi	- 5 x slot PCI Express 3.0 x16 (PCIE2: x16 mode atau PCIE1/ PCIE3/PCIE5/PCIE7: x16/0/16/0 atau x8/8/8/8 mode) * PCIE 3.0 hanya didukung dengan Intel® Ivy Bridge CPU. Dengan Intel® Sandy Bridge CPU, hanya PCIE 2.0 yang didukung. - 1 x PCI Express 2.0 x16 slot (PCIE4: x4 mode) - 1 x PCI Express 2.0 x1 slot - Mendukung AMD Quad CrossFireX™, 4-Way CrossFireX™, 3-Way CrossFireX™ dan CrossFireX™ - Mendukung NVIDIA® Quad SLI™, 4-Way SLI™, 3-Way SLI™ dan SLI™
Diagram	* Intel® HD Graphics Built-in Visual dan output VGA hanya dapat didukung dengan prosesor yang mengintegrasikan GPU. - Mendukung Intel® HD Graphics Built-in Visuals: Intel® Quick Sync Video 2.0, Intel® InTru™ 3D, Intel® Clear Video HD Technology, Intel® Insider™, Intel® HD Graphics 2500/4000 - Pixel Shader 5.0, DirectX 11 dengan Intel® Ivy Bridge CPU, Pixel Shader 4.1, DirectX 10.1 dengan Intel® Sandy Bridge CPU - Ingatan sama Max. 1760MB

	- Mendukung HDMI 1.4a Technology dengan resolusi maksimal hingga 1920x1200 @ 60Hz - Mendukung Auto Lip Sync, Deep Color (12bpc), xvYCC dan HBR (High Bit Rate Audio) dengan HDMI (memerlukan monitor HDMI yang kompatibel) - Mendukung fungsi HDCP dengan port HDMI - Mendukung pemutaran 1080p Blu-ray (BD) / HD-DVD dengan port HDMI
Audio	- 7.1 CH HD Audio dengan Content Protection (Realtek ALC898 Audio Codec) - Menggunakan Premium Blu-ray audio
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Broadcom BCM57781 - Menggunakan Wake-On-LAN - Mendukung Energy Efficient Ethernet 802.3az - Mendukung Dual LAN dengan fungsi Teaming - Mendukung PXE
Penyimpanan	- 2 x penghubung Intel® Z77 SATA3 6.0Gb/s, dapat digunakan RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage dan Intel Smart Response Technology), NCQ, AHCI dan fungsi fungsi “Hot Plug” - 4 x penghubung ASMedia ASM1061 SATA3 6.0Gb/s, dapat digunakan NCQ, AHCI dan fungsi fungsi “Hot Plug” (konektor SATA3_A4 dibagi dengan port eSATA3) - 4 x penghubung Intel® Z77 SATA2 3.0Gb/s, dapat digunakan RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage dan Intel Smart Response Technology), NCQ, AHCI dan fungsi fungsi “Hot Plug”
Papan Belakang I/O	I/O Panel - 1 x Port Keyboard/Mouse PS/2 - 1 x Port HDMI - 1 x Port Keluaran Optical SPDIF - 2 x Port USB 2.0 siap-dipakai - 1 x Port eSATA3 - 8 x Port USB 3.0 siap-dipakai - 2 x RJ-45 LAN Port LED (ACT/LINK LED dan SPEED LED) - 1 x Tombol Clear CMOS dengan LED - 1 x Port IEEE 1394 - HD Audio Jack: Penyuara Belakang/Pusat/Bass/Line in/ Penyuara Depan/mikropon

USB 3.0	- 4 x Port Belakang USB 3.0 dari Intel® Z77, mendukung USB 1.0/2.0/3.0 hingga 5Gb/s - 4 x Port Belakang USB 3.0 dari Etron EJ188, mendukung USB 1.0/2.0/3.0 hingga 5Gb/s - 2 x Port Depan USB 3.0 dari Etron EJ188 (menggunakan 4 port USB 3.0), mendukung USB 1.0/2.0/3.0 hingga 5Gb/s
Penghubung	- 1 x IR header - 1 x CIR header - 1 x port header COM - 1 x HDMI_SPDIF header - 1 x IEEE 1394 header - 1 x header power LED - 2 x Penghubung KIPAS CPU (1 x 4-pin, 1 x 3-pin) - 3 x Penghubung KIPAS casis (1 x 4-pin, 2 x 3-pin) - 1 x Penghubung KIPAS power (3-pin) - Penghubung power 24 pin ATX - Penghubung power 8 pin 12V - Penghubung power SLI/XFire - Penghubung audio panel dapan - 2 x USB 2.0 header (menggunakan 4 port USB 2.0) - 1 x USB 3.0 header (menggunakan 2 port USB 3.0) - 1 x Dr. Debug - 1 x kuasa beralih LED - 1 x ulang beralih LED - 1 x Clear CMOS LED
Ciri-ciri BIOS	- 64Mb AMI UEFI Legal BIOS dengan dukungan GUI - Menggunakan “Plug and Play” - ACPI 1.1 Compliance Wake Up Events - Menggunakan jumperfree - Penyokong AMBIOS 2.3.1 - Penyesuaian berbagai tegangan CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA
Sokongan CD	- Driver, Utilitas, Perangkat Lunak Antivirus (Versi Percobaan), CyberLink MediaEspresso 6.5 Versi Percobaan, ASRock MAGIX Multimedia Suite - OEM
Penjaga Hardware	- Perasa Suhu CPU - Perasa Suhu Casis - Pengukur Kipas CPU/casis/power - Kipas CPU/Sasis Senyap (Kecepatan Kipas Sasis Otomatis Disesuaikan Berdasarkan Temperatur CPU) - Kontrol Multi-Kecepatan Kipas CPU/casis

	- Penjagaan voltasi: +12V, +5V, +3.3V, Vcore
OS	- dapat digunakan Microsoft® Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit
Sertifikasi	- FCC, CE, WHQL - ErP/EuP Ready (memerlukan catu daya ErP/EuP ready)

* Untuk informasi rinci, silakan kunjungi website kami: http://www.asrock.com

Installing OS on a HDD Larger Than 2TB in AHCI Mode

This motherboard adopts UEFI BIOS that allows Windows® OS to be installed on a large size HDD (>2TB). Please follow the procedures below to install the operating system.

1. Please make sure to use **Windows® Vista™ 64-bit (with SP2 or above)** or **Windows® 7 64-bit (with SP1 or above)**.
2. Press <F2> or <Delete> at system POST. Set **AHCI Mode** in UEFI Setup Utility > Advanced > Storage Configuration > SATA Mode.
3. Choose the item **"UEFI:xxx"** to boot in UEFI Setup Utility > Boot > Boot Option #1. ("xxx" is the device which contains your Windows® installation files. Normally it is an optical drive.) You can also press <F11> to launch boot menu at system POST and choose the item **"UEFI:xxx"** to boot.
4. Start Windows® installation.

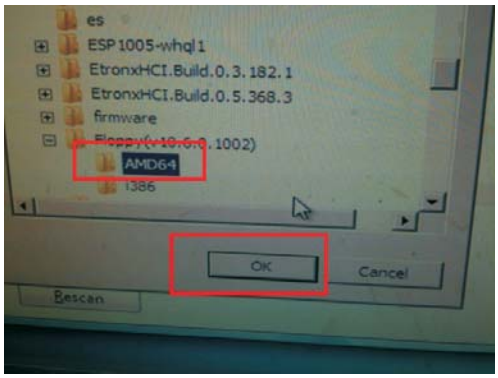
Installing OS on a HDD Larger Than 2TB in RAID Mode

This motherboard adopts UEFI BIOS that allows Windows® OS to be installed on a large size HDD (>2TB). Please follow the procedures below to install the operating system.

1. Please make sure to use **Windows® Vista™ 64-bit (with SP2 or above)** or **Windows® 7 64-bit (with SP1 or above)**.
2. Copy Intel® RAID drivers into a USB flash disk. You can download the driver from ASRock's website and unzip the file into a USB flash disk **OR** copy the file from ASRock motherboard support CD. (please copy the files under following directory:
   32 bit: ..\i386\Win7_Vista_Intel..
   64-bit: ..\AMD64\Win7-64_Vista64_Intel..
3. Create RAID array for you system. Please refer to "Intel RAID Installation Guide" file for details.
4. Install Windows® Vista™ 64-bit / 7 64-bit:
   A. Insert your Windows® Vista™ 64-bit / 7 64-bit installation disc to the optical drive.
   B. Press <F11> to launch boot menu at system POST and choose the item "UEFI:xxx" to boot.
   C. Start Windows® Installation. When you see "Where do you want to install Windows?" page, please click "Load Driver".

   D. Plug the USB flash disk into your USB port; select "Browse" to find the RAID driver. Then choose the directory (xx\AMD64\) you have copied in the first step.

English



E. Please keep the USB flash disk installed until the system first reboot.

F. Continue to install OS by following the Windows® instructions.

5. Follow Windows® Installation Guide to install OS.

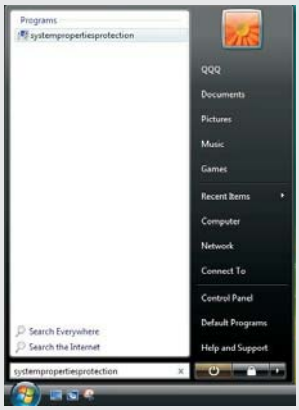
If you install Windows® 7 64-bit / Vista™ 64-bit in a large hard disk (ex. Disk volume > 2TB), it may take more time to boot into Windows® or install driver/ utilities. If you encounter this problem, you will need to following instructions to fix this problem.

Windows® Vista™ 64-bit:

Microsoft® does not provide hotfix for this problem. The steps listed below are Microsoft®'s suggested solution:

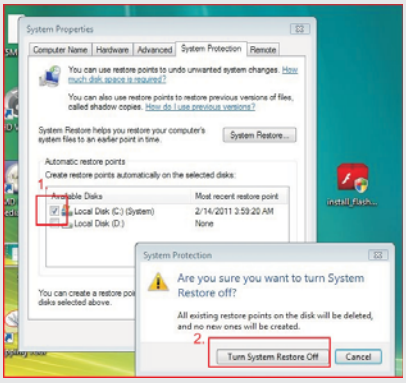
A. Disable System Restore.

a. Type “systempropertiesprotection” in the Start Menu. Then press "Enter".



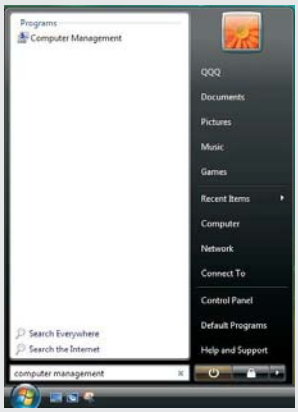
b. De-select Local Disks for System Restore. Then Click “Turn System Restore Off” to confirm. Then Press “Ok”.

English

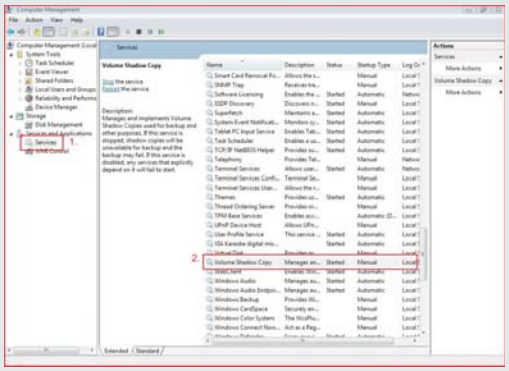


B. Disable “Volume Shadow Copy” service.

a. Type “computer management” in the Start Menu, then press “Enter”.

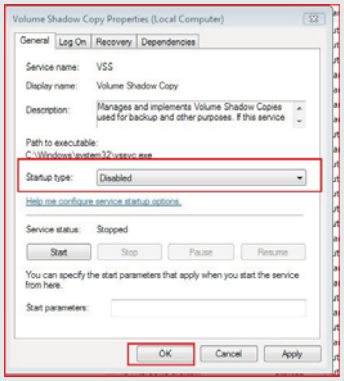


b. Go to “Services and Applications>Services”; Then double click “Volume Shadow Copy”.



English

c. Set “Startup type” to “Disable” then Click “OK”.



C. Reboot your system.

D. After reboot, please start to install motherboard drivers and utilities.

Windows® 7 64-bit:

A. Please request the hotfix KB2505454 through this link:
http://support.microsoft.com/kb/2505454/

B. After installing Windows® 7 64-bit, install the hotfix kb2505454.
(This may take a long time; >30 mins.)

C. Reboot your system. (It may take about 5 minutes to reboot.)

D. Windows® will install this hotfix then reboot by itself.

E. Please start to install motherboard drivers and utilities.

6. Finish.

English